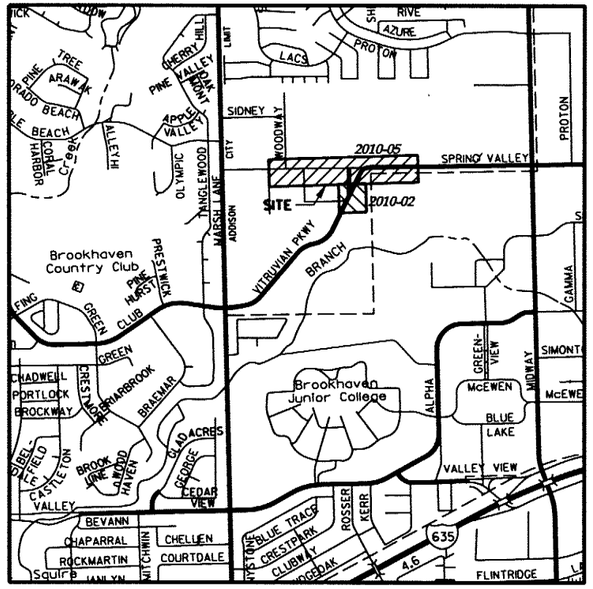
PLANS FOR THE CONSTRUCTION OF
SPRING VALLEY ROAD WIDENING
FROM WOODWAY TO VITRUVIAN WAY
INCLUDING PLANS FOR VITRUVIAN PARK PUBLIC INFRASTRUCTURE PHASE 1E

PUBLIC WORKS # 2010-05
AND
PUBLIC WORKS # 2010-02

OCTOBER 2010

Addison!®



VICINITY MAP
NOT TO SCALE

HALFF®
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200
FAX (214) 739-0095

RECORD DRAWINGS

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SPRING VALLEY ROAD

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VITRUVIAN WAY ★★

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★★ VITRUVIAN WAY SHEETS PROVIDED SEPARATELY BY ICON ENGINEERING

* Standard details apply to both projects

RECORD DRAWINGS

SHEET 2 OF 163

RECORD DOCUMENTS
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc.
The Design Professional has not verified the accuracy and / or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result

Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS · M.E. ROMANOWSKI · 56306 · LICENSED · PROFESSIONAL ENGINEER

Signature of Registrant, P.E. Date 12/8/2011

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

INDEX OF SHEETS

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275 TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 INDX 01	INDEX

USER: ah1299
OFFICE: RCH
FILE: 27530 INDX 01.dgn
TIME: 10:04:09 AM
DATE: 12/7/2011
PROJECT # 27530

GENERAL NOTES

1. All work shall conform to the requirements of the Town of Addison and shall be in accordance with the Town of Addison standard details and specifications for construction. All work not covered in the contract documents and the Town of Addison standard details and specifications for construction shall be governed by the North Central Texas Council of Governments Standard Specifications for Public Works Construction, Fourth Edition, dated 2004, including all amendments.
2. Existing utility locations shown are generally schematic in nature and may not accurately reflect the size and location of each particular utility. Existing utilities shown have been based on available record drawings and surface appurtenance field ties only. Some utility lines and surface locations may not be shown. The contractor shall assume responsibility for actual field location and protection of existing utilities whether shown or not. The Contractor shall also assume responsibility for repairs to existing utilities whether shown or not, damaged by the Contractors activities. Differences in horizontal or vertical location of existing utilities shall not be basis for additional compensation to the Contractor.
3. The Contractor shall protect existing property monumentation and primary control. Any such points which the Contractor believes will be destroyed shall have offset points established by the Contractor prior to construction. Any monumentation destroyed by the Contractor shall be reestablished at Contactors expense by a registered professional surveyor.
4. Topographic survey information shown on the plans is provided for informational purposes. The Contractor shall be responsible for verifying that the information shown is correct, and shall notify the engineer immediately of any errors, discrepancies or omissions to the survey information provided. Any costs incurred as the result of not confirming the actual survey shall be borne by the Contractor.
5. It shall be the responsibility of the Contractor to: A.) Prevent any damage to private property and property owner's poles, fences, shrubs, etc. B.) Protect all underground utilities. C.) Notify all utility companies at least 48 hours prior to excavation in accordance with Texas Law D.) Field verify horizontal and vertical location of all utilities in the vicinity of construction activities prior to start of construction. The Contractor shall notify Engineer of any unidentified potential conflicts that may exist between the existing utilities and construction plans.
6. Any damage that may occur to real property or existing improvements, including existing private and public landscape irrigation systems, shall be restored by the Contractor to at least the same condition that the real property or existing improvements were in prior to the damages. This restoration shall be subject to the Owner's approval; moreover, this restoration shall not be a basis for additional compensation to the Contactor. The Contractor must furnish a letter to the town, signed by the property owner that states repairs are satisfactory.
7. The Contractor shall maintain drainage at all times during construction. Ponding of water in streets, drives, trenches, etc. will not be allowed. The Contractor shall maintain residential driveway access at all times.
8. The Contractor shall maintain existing sanitary sewer and water service at all times during construction unless approved by Town of Addison in advance.
9. The Contractor is responsible for coordination with utility companies and adjustment of existing sanitary sewer manholes, cleanouts, water meters, water valves, fire hydrants and other utility appurtenances to finished grade as required at no additional cost to the Town of Addison.
10. The Contactor shall excavate and field locate the horizontal and vertical location of existing water lines and sanitary sewer lines at all proposed storm drain line crossing locations utilizing provided project control. In addition, the horizontal and vertical location and size of existing storm drain lines shall be verified at the point of proposed connection with new storm drain facilities. Field verification shall be performed by the Contactor prior to beginning construction of the proposed storm drain improvements. The Contractor shall immediately notify the Engineer of any discrepancies identified between the Contractors field verified existing utility location and the existing utility location represented on the drawings. The Contractor shall give all franchise utilities 48 hours advanced notice before construction in areas where utilities are present.
11. Areas of the site that will underlie fill shall be scarified to a depth of 6 inches and recompacted in accordance with embankment specifications.
12. Pedestrian and vehicular traffic flow, safety and access shall be maintained during all phases of construction. Barricading and traffic control during construction shall be the responsibility of the contractor and shall conform to the Texas Manual on Uniform Traffic Control Devices, Part VI in particular. Traffic flow and access shall be maintained during all phases of construction unless otherwise noted on the traffic control plan. The Contractor is responsible for providing traffic safety measures for work on the project. The Contractor shall assume full responsibility for public safety in the construction area during the duration of construction activities.
13. The Contractor shall abide by all applicable federal, state, and local laws governing excavation. The Contractor shall provide detailed plans and specifications for trench safety systems that comply with applicable laws governing excavation. These plans shall be sealed by an Engineer experienced in the design of trench safety systems licensed in the State of Texas. The Contractor shall submit completed trench safety plan to the Engineer prior to commencing work. The Contractor shall be solely responsible for all aspects of work related excavation.
14. The Contractor shall remove from the project area all surplus material. This work shall be incidental and not a separate pay item. Surplus materials from excavation include dirt, trash, rock measuring greater than 9" in the largest dimension, etc. shall be properly disposed of at a site acceptable to the Town of Addison if within the Town limits. If the location is not within the Town limits, the Contractor shall provide a letter stating so. No excess excavated material shall be deposited in low areas or along natural drainage ways without written permission from the affected property owner and the Town of Addison. If the Contactor places excess material in these areas without written permission, he will be responsible for all damages resulting from such fill and he shall remove the material at his own cost.
15. Bidders shall make any investigation of existing subsurface conditions as deemed necessary at no expense to the Town of Addison. Neither the Town of Addison nor the Engineer will be responsible in any way for additional compensation for excavation work performed under this contract due to the Contractors assumptions.
16. Basic horizontal and vertical control points will be established or designated by Halff Associates, Inc. These points shall be used as a datum for the work. All additional survey work shall be performed by a competent surveyor employed by the contractor. As part of the work, the Town of Addison will provided inspection of the proposed construction.
17. The Contractor will furnish to the Town of Addison the name of an OSHA certified competent person to be on the project at all times.
18. Trees shall only be removed if designated on the plans. The Contractor shall stake limits of proposed grading prior to clearing operations and identify (by flagging) adjacent trees that are to remain outside of these limits for Town review and approval. The Contactor shall provide the Town 72 hours advanced notice of when trees will be flagged and ready for review. All cleared material shall be promptly removed from the site and properly disposed. Stockpiling of cleared material will not be allowed. Burning of cleared material is prohibited. The Contractor is directed to NCTCOG specification item 3.2 for additional requirements. The clearing and removal of trees and other objectionable material shall not be paid for directly but shall be considered subsidiary to pay item ORight-of-Way Preparation. If in the opinion of the Engineer, a tree that is to remain requires protecting from construction, it shall be protected in accordance with note 19.
19. Where trees, plants, shrubbery, etc. are adjacent to the line of work and are not to be removed or removed and replaced, the Contractor shall protect such trees, plants, shrubbery, etc. If such trees, plants, shrubbery, etc. could be damaged by machinery, etc., orange safety fencing with steel T-posts having a minimum height of 3' and as approved by the Town shall be utilized for protection. Hand excavation may also be required in vicinity of trees, plants, shrubbery, etc. that are to remain. The Contractor shall not permit machinery or employees to scrape, tear the limbs from, damage or attach guy cables to existing trees that are to remain in place. The Contractor shall be responsible for all damages to adjacent trees, plants, shrubbery, etc. that are to remain and any such damage shall be remedied to the satisfaction of the Town.
20. The Contractor shall coordinate the protection of existing franchise utilities and appurtenances including existing utility poles in the vicinity of construction operations whether utilities are shown in the Contract Documents or not. Any damage incurred to existing franchise utilities, appurtenances, power poles etc. by construction related activities shall be the sole responsibility of the Contractor.
21. Only Town staff will be allowed to operate existing water line valves. Contractor shall coordinate with Town staff for water valve closures and openings.
22. Contractor is responsible for condition of removed signs. Removed signs to be reinstalled must be in same conditions or better condition when reinstalled.
23. The Contractor must cease all construction operations immediately if a suspected archeological object/artifact is uncovered during construction. The Contractor must immediately contact THC and the Town. Project work will not commence until proper permits are in place and provided to the Town.
24. The Contractor must comply with the Migratory Bird Treaty Act.
25. The Town had informed all franchise utilities of this project and had provided them with plans. The Town has also worked with the franchise utilities in planning the relocation of their conflicting lines and facilities. The Contractor is responsible to continue coordination directly with the franchise utilities to ensure that any utilities in conflict are adjusted or relocated in accordance with contractor's construction schedule. No additional contract days or additional remobilization expenses will be provided or paid for by the Town to the Contractor for time incurred w/ franchise utility adjustment.
26. Inspection of the proposed construction will be provided and paid for by the Town of Addison. The Contractor shall provide assistance by providing excavation, trench safety, or other work necessary to facilitate inspection activities, and shall give sufficient notice well in advance of pending construction activities to the Town of Addison for scheduling of inspection services.
27. All dimensions are to the face of curb unless otherwise noted.

UTILITY CONTACTS

ATMOS	- GARY WOOLSEY - gary.woolsey@atmosenergy.com
AT&T	- JOHN HOLLINGSWORTH- jh5568@att.com
ONCOR	- LARRY BALDWIN - larry.baldwin@oncor.com
TIME WARNER	- WARREN FYFFE - warren.fyffe@twcable.com

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/6/2011
Signature of Registrant Date

SHEET 3 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

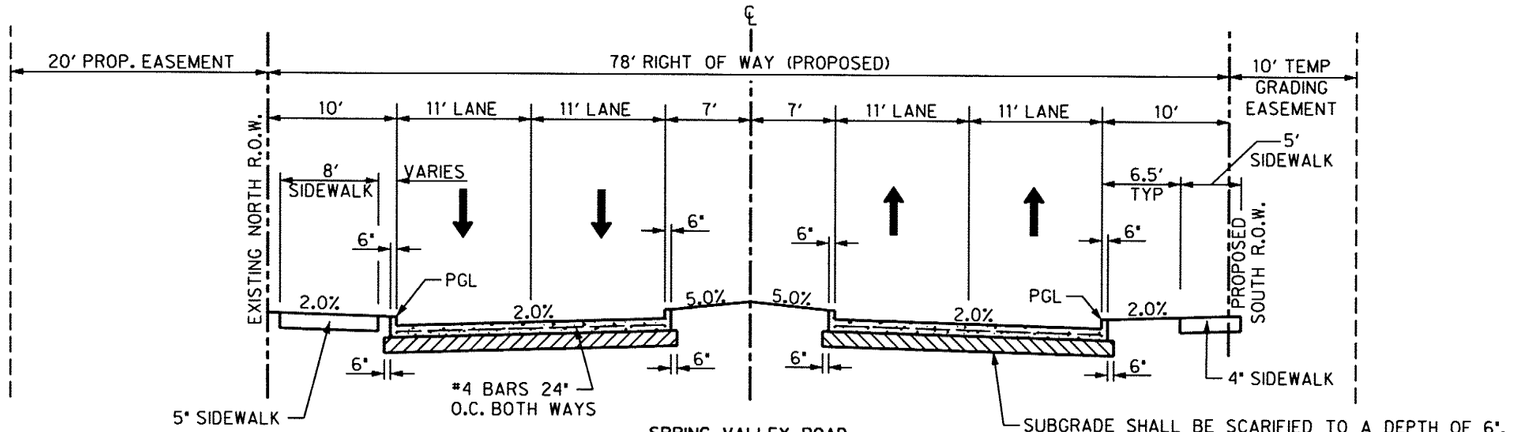
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

GENERAL NOTES

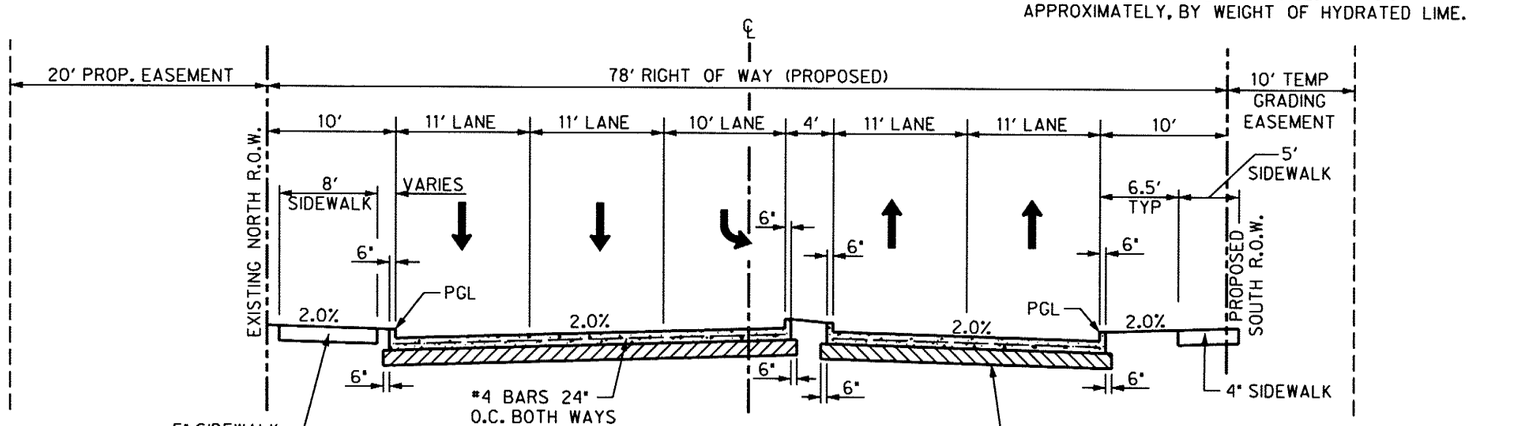
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 GNTS 01	GN-1



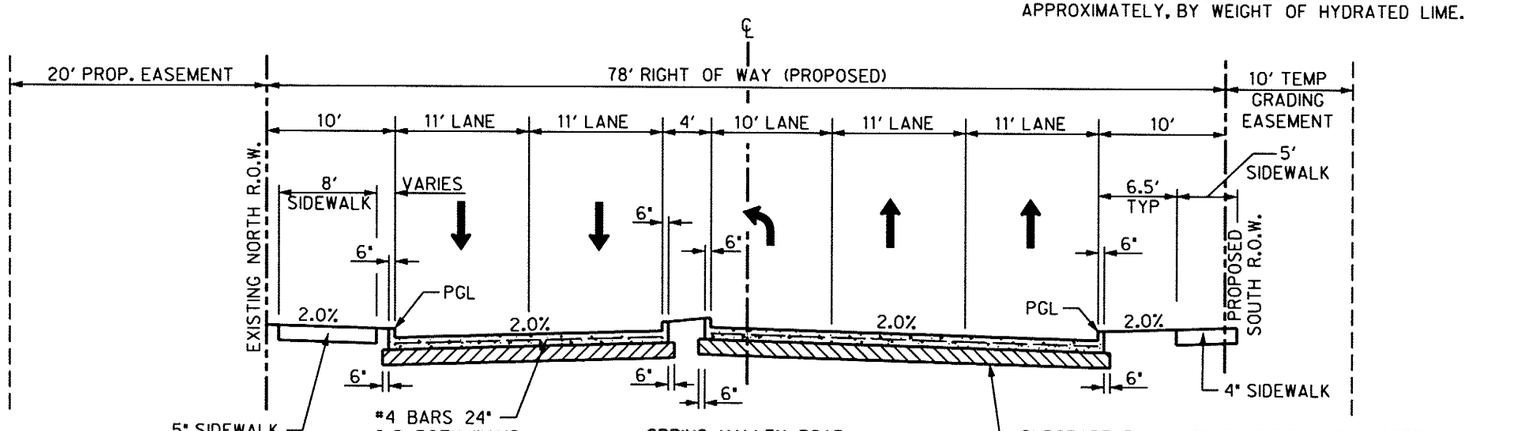
SPRING VALLEY ROAD
PROPOSED TYPICAL SECTION

SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6", LIME STABILIZED & RECOMPACTED TO 95% OF MAX. DENSITY AS DETERMINED BY A.S.T.M. D-698. SUBGRADE SHALL BE STABILIZED W/ 6% APPROXIMATELY, BY WEIGHT OF HYDRATED LIME.



SPRING VALLEY ROAD
PROPOSED TYPICAL SECTION
WITH WESTBOUND LEFT TURN

SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6", LIME STABILIZED & RECOMPACTED TO 95% OF MAX. DENSITY AS DETERMINED BY A.S.T.M. D-698. SUBGRADE SHALL BE STABILIZED W/ 6% APPROXIMATELY, BY WEIGHT OF HYDRATED LIME.



SPRING VALLEY ROAD
PROPOSED TYPICAL SECTION
WITH EASTBOUND LEFT TURN

SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6", LIME STABILIZED & RECOMPACTED TO 95% OF MAX. DENSITY AS DETERMINED BY A.S.T.M. D-698. SUBGRADE SHALL BE STABILIZED W/ 6% APPROXIMATELY, BY WEIGHT OF HYDRATED LIME.

LEGEND

- 10" CRCP (4200 PSI)
- 6" LIME STABILIZED BASE

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RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant, P.E. 12/8/2011
Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TYPICAL SECTION

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TYPP 01	TS-1

RECORD DRAWINGS

SURVEY CONTROL POINTS

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
301	9994.2658	11014.7967	587.45	FXTP
302	9996.3462	11213.6958	582.45	SXTP
303	9440.2542	11995.6202	583.07	FXTP
201	9933.8451	12137.7362	584.18	FXTP
202	9906.1846	12168.8438	583.76	FXTP

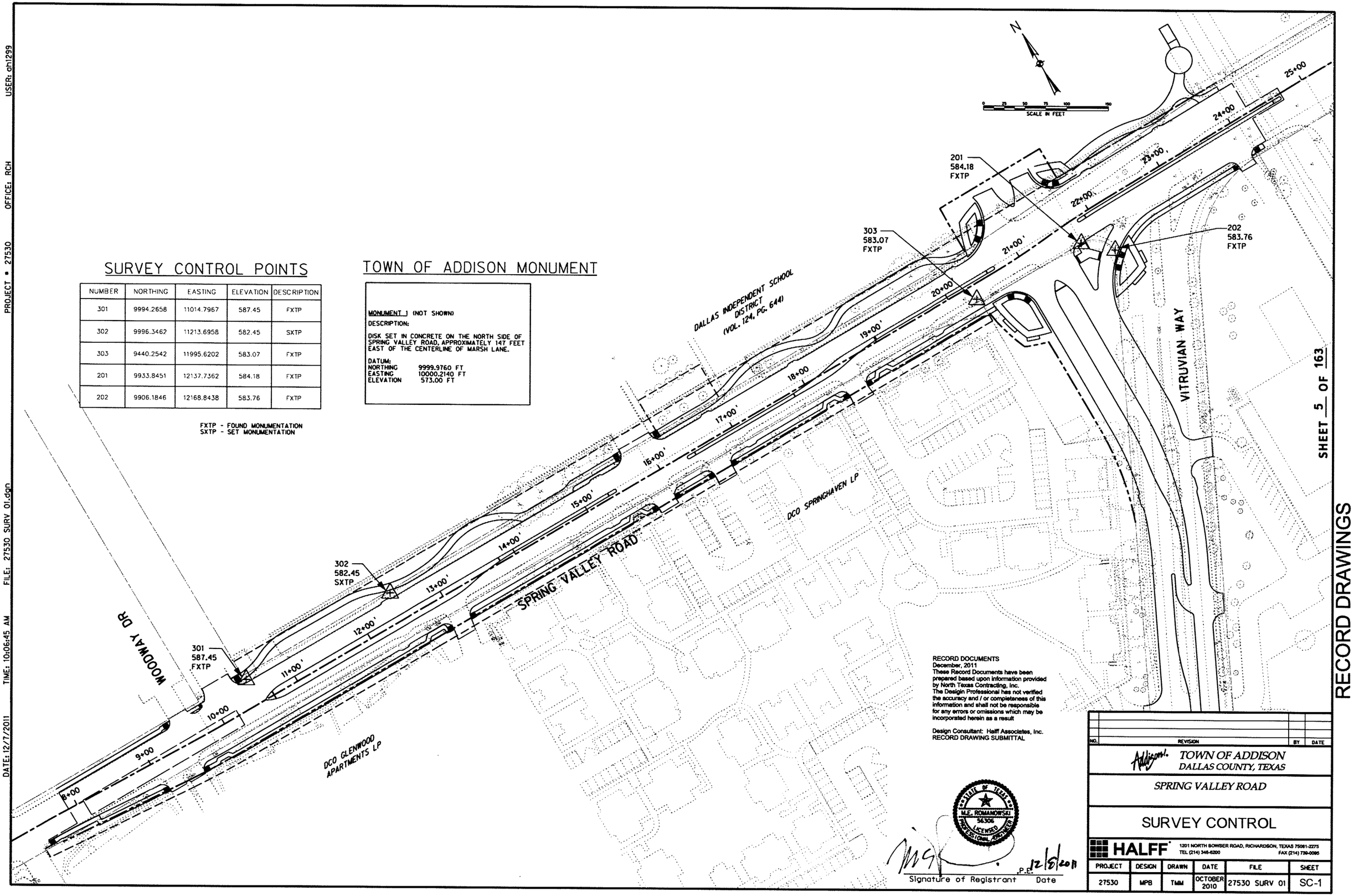
FXTP - FOUND MONUMENTATION
SXTP - SET MONUMENTATION

TOWN OF ADDISON MONUMENT

MONUMENT 1 (NOT SHOWN)
DESCRIPTION:

DISK SET IN CONCRETE ON THE NORTH SIDE OF SPRING VALLEY ROAD, APPROXIMATELY 147 FEET EAST OF THE CENTERLINE OF MARSH LANE.

DATUM:
NORTHING 9999.9760 FT
EASTING 10000.2140 FT
ELEVATION 573.00 FT



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M.E. ROMANOWSKI
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Signature of Registrant P.E. 12/8/2011 Date

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TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

SURVEY CONTROL

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275 TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 SURV 01	SC-1

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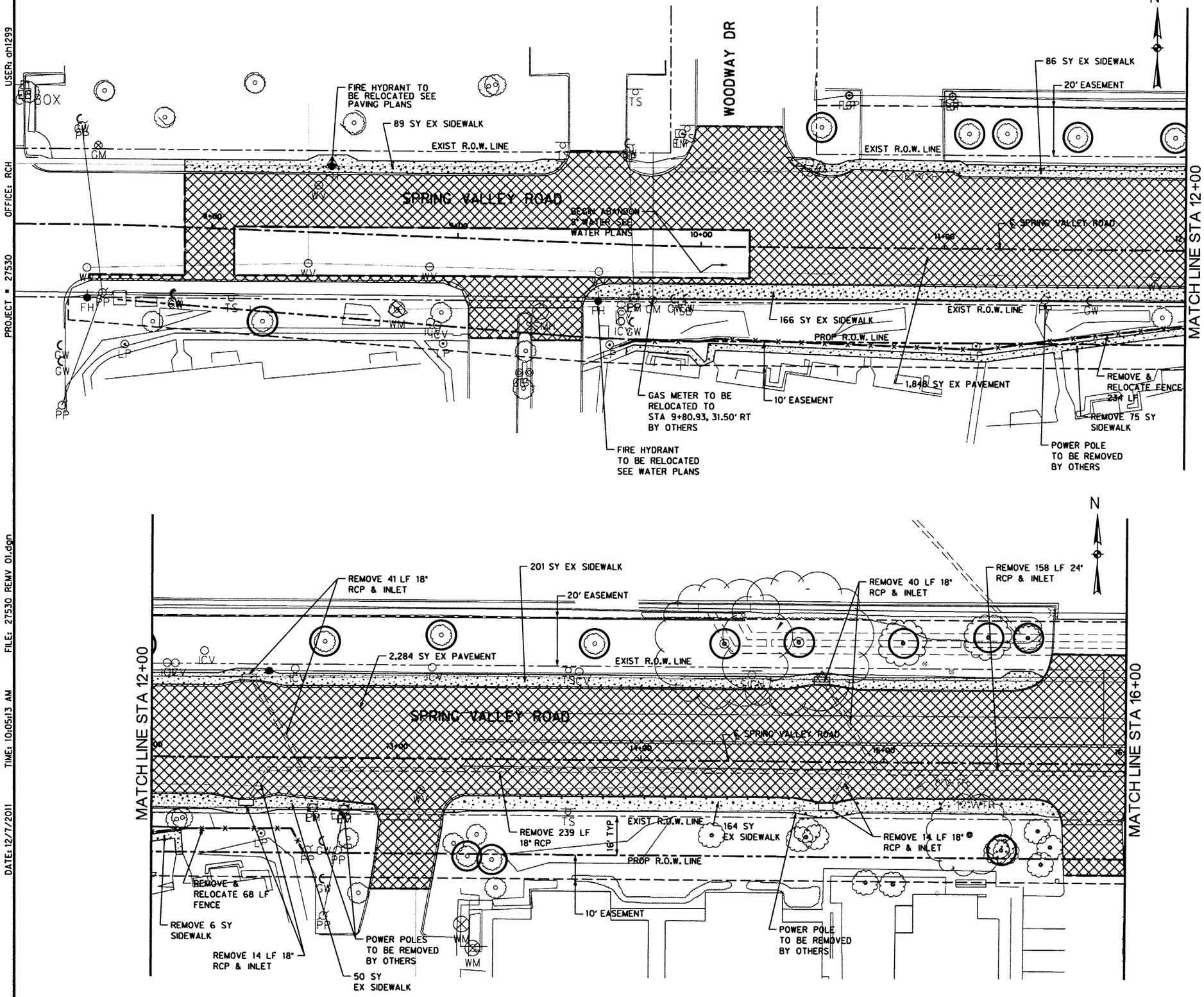
RECORD DRAWINGS



LEGEND

- CONCRETE PAVEMENT TO BE SAWCUT AND REMOVED
- CONCRETE SIDEWALK TO BE REMOVED
- SAWCUT LINE
- TREE PROTECTION SEE REMOVAL DETAIL SHEET

NOTE:
SEE LANDSCAPE PLANS FOR TREES TO BE REMOVED & TREES TO REMAIN.

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LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/8/2011

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

REMOVAL PLAN
STA 7+49.89 TO STA 16+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 REMV 01	RM-1

SHEET 6 OF 163

RECORD DRAWINGS

USER: ch1299
OFFICE: RCH
PROJECT # 27530
DATE: 12/7/2011 TIME: 10:05:13 AM FILE: 27530 REMV 01.dgn

RECORD DRAWINGS

REMOVE EXISTING RETAINING WALL & SHRUBS
REMOVE 83 LF 60" RCP SEE STORM SHEET FOR LIMITS
REMOVE 14 LF 24" RCP & INLET
50 SY EX SIDEWALK
20' EASEMENT
104 SY EX SIDEWALK
REMOVE INLET & 36 LF 18" RCP
2,424 SY EX PAVEMENT
EXIST R.O.W. LINE
SIGN
SPRING VALLEY ROAD
MATCH LINE STA 16+00
MATCH LINE STA 20+00
17+00
18+00
19+00
℄ SPRING VALLEY ROAD
EXIST R.O.W. LINE
103 SY EX SIDEWALK
POWER POLE TO BE REMOVED BY OTHERS
PROP R.O.W. LINE
33 SY EX SIDEWALK
POWER POLE TO BE REMOVED BY OTHERS
REMOVE INLET & 18 LF 18" RCP
WARNING!!! EXISTING GAS LINE IN AREA.
REMOVE EXISTING LARGE SIGN
GAS METER TO BE RELOCATED TO STA 18+10.04, 31.75' RT BY OTHERS
REMOVE 311 LF 18" RCP
116' TYP
ABANDON 8" WL
REMOVE INLET & 20 LF 18" RCP
73 SY EX SIDEWALK
10' EASEMENT
POWER POLE TO BE REMOVED BY OTHERS

N

SCALE IN FEET
0 10 20 30 40 60

LEGEND

- CONCRETE PAVEMENT TO BE SAWCUT AND REMOVED
- CONCRETE SIDEWALK TO BE REMOVED
- SAWCUT LINE
- TREE PROTECTION SEE REMOVAL DETAIL SHEET

NOTE:
SEE LANDSCAPE PLANS FOR TREES TO BE REMOVED & TREES TO REMAIN.

4,242 SY EX PAVEMENT
35 SY EX SIDEWALK
REMOVE LIGHT POLES
131 SY EX SIDEWALK
REMOVE TRAFFIC SIGNALS & SALVAGE TO CITY OF FARMERS BRANCH
REMOVE LIGHT POLES
REMOVE TRAFFIC CABINET & SALVAGE TO CITY OF FARMERS BRANCH
20 SY EX SIDEWALK
PROP EASEMENT LINE
SZL
EXIST R.O.W. LINE
TSL
SPRING VALLEY ROAD
21+00
22+00
23+00
24+00
℄ SPRING VALLEY ROAD
END ABANDON 8" WATER SEE WATER PLANS
REMOVE OVERHEAD POLE AND SIGN SALVAGE TO TOWN OF ADDISON
EXIST R.O.W. LINE
68 SY EX SIDEWALK
POWER POLES TO BE REMOVED BY OTHERS
10' EASEMENT
GAS METER TO BE REMOVED BY OTHERS
REMOVE TRAFFIC SIGNALS & SALVAGE TO CITY OF FARMERS BRANCH
RELOCATE 5 EX WATER METERS OUTSIDE PROPOSED PAVEMENT LIMITS
87 SY EX SIDEWALK
ABANDON 8" WL
REMOVE TRAFFIC SIGNAL & SALVAGE TO CITY OF FARMERS BRANCH
EX R.O.W. LINE
WARNING!!! EXISTING GAS LINE IN AREA.
99 SY EX SIDEWALK
REMOVE LIGHT POLE
14"O
20"RR

N

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
96306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011 Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

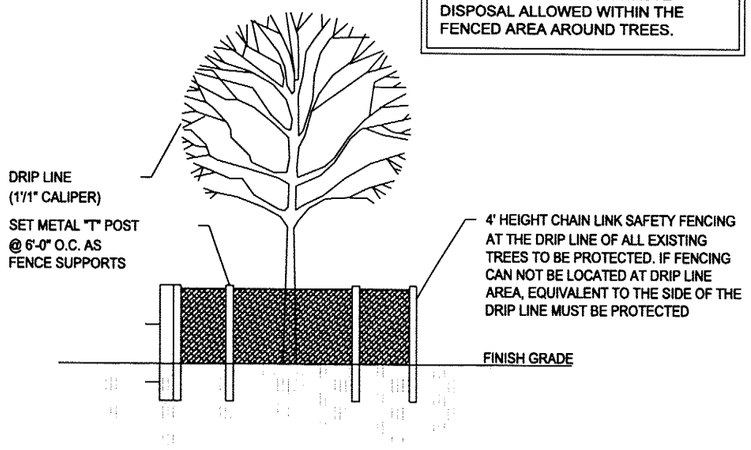
SPRING VALLEY ROAD

REMOVAL PLAN
STA 16+00 TO STA 26+11.52

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 REMV 02	RM-2

NOTES
1. FENCE TO BE MAINTAINED AND REPAIRED AS NEEDED DURING CONSTRUCTION.
2. NO CONSTRUCTION TRAFFIC, GRADING STORAGE OR WASTE DISPOSAL ALLOWED WITHIN THE FENCED AREA AROUND TREES.



TREE PROTECTION NOTES

1. EXISTING TREES SHOWN TO REMAIN ARE TO PROTECTED DURING CONSTRUCTION. CHAINLINK FENCING (MIN. 4'-0" HEIGHT) SHALL BE INSTALLED AT THE DRIP LINE OF ALL TREES OR TREE GROUPS TO REMAIN. PARKING OF VEHICLES OR PERFORMING WORK WITHIN THESE AREAS OTHER THAN SHOWN ON THE PLAN, WILL NOT BE ALLOWED. THE TREE PROTECTION SHALL REMAIN DURING CONSTRUCTION. OTHER TREE PROTECTION MEASURES SHALL BE IN ACCORDANCE WITH THE CITY'S STANDARDS AND ORDINANCES.

2. DISPOSAL OF ANY WASTE MATERIAL SUCH AS, BUT NOT LIMITED TO, PAINT, ASPHALT, OIL SOLVENTS, CONCRETE, MORTAR, ETC. WITHIN THE CANOPY AREA OF THE EXISTING TREES SHALL NOT BE ALLOWED.

3. NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO TREE.

4. NO FILL OR EXCAVATION OF ANY NATURE SHALL OCCUR WITHIN THE DRIP LINE OF A TREE TO BE PRESERVED, UNLESS THERE IS A SPECIFIED WELL OR RETAINING WALL SHOWN ON THE GRADING PLAN.

5. NO MATERIALS SHALL BE STORED WITHIN THE DRIPLINE AREA OF A TREE TO BE PRESERVED.

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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/6/2011
Signature of Registrant Date

SHEET 8 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

REMOVAL DETAILS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
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PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DTLS 01	DT-RD

DESCRIPTION OF SPRING VALLEY CENTERLINE

Point 1 N 9,970.2712 E 10,615.7988 Sta 6+49.89

Course from 1 to PC CURSV-3 S 89° 45' 14.20" E Dist 100.0000

Curve Data

Curve CURSV-3
P.I. Station 7+63.21 N 9,969.7845 E 10,729.1133
Delta = 1° 47' 41.87" (RT)
Degree = 6° 44' 26.45"
Tangent = 13.3155
Length = 26.6288
Radius = 850.0000
External = 0.1043
Long Chord = 26.6277
Mid. Ord. = 0.1043
P.C. Station 7+49.89 N 9,969.8417 E 10,715.7979
P.T. Station 7+76.52 N 9,969.3103 E 10,742.4203
C.C. N 9,119.8495 E 10,712.1476
Back = S 89° 45' 14.20" E
Ahead = S 87° 57' 32.33" E
Chord Bear = S 88° 51' 23.26" E

Course from PT CURSV-3 to PC CURSV-4 S 87° 57' 32.33" E Dist 196.8477

Curve Data

Curve CURSV-4
P.I. Station 9+86.68 N 9,961.8253 E 10,952.4502
Delta = 1° 47' 41.87" (LT)
Degree = 6° 44' 26.45"
Tangent = 13.3155
Length = 26.6288
Radius = 850.0000
External = 0.1043
Long Chord = 26.6277
Mid. Ord. = 0.1043
P.C. Station 9+73.37 N 9,962.2996 E 10,939.1431
P.T. Station 10+00.00 N 9,961.7682 E 10,965.7655
C.C. N 10,811.7603 E 10,969.4159
Back = S 87° 57' 32.33" E
Ahead = S 89° 45' 14.20" E
Chord Bear = S 88° 51' 23.26" E

Course from PT CURSV-4 to PC CURSV-1 S 89° 45' 14.20" E Dist 1,058.1379

Curve Data

Curve CURSV-1
P.I. Station 20+99.61 N 9,957.0459 E 12,065.3717
Delta = 5° 35' 14.71" (LT)
Degree = 6° 44' 26.45"
Tangent = 41.4784
Length = 82.8910
Radius = 850.0000
External = 1.0114
Long Chord = 82.8582
Mid. Ord. = 1.0102
P.C. Station 20+58.13 N 9,957.2240 E 12,023.8937
P.T. Station 21+41.02 N 9,960.9071 E 12,106.6700
C.C. N 10,807.2162 E 12,027.5440
Back = S 89° 45' 14.20" E
Ahead = N 84° 39' 31.09" E
Chord Bear = N 87° 27' 08.45" E

Curve Data

Curve CURSV-2
P.I. Station 21+79.47 N 9,964.4856 E 12,144.9452
Delta = 5° 10' 44.39" (RT)
Degree = 6° 44' 26.45"
Tangent = 38.4422
Length = 76.8320
Radius = 850.0000
External = 0.8689
Long Chord = 76.8058
Mid. Ord. = 0.8680
P.C. Station 21+41.02 N 9,960.9071 E 12,106.6700
P.T. Station 22+17.86 N 9,964.5946 E 12,183.3873
C.C. N 9,114.5980 E 12,185.7960
Back = N 84° 39' 31.09" E
Ahead = N 89° 50' 15.49" E
Chord Bear = N 87° 14' 53.29" E

Course from PT CURSV-2 to 6 N 89° 50' 15.52" E Dist 1,730.4681

Point 6 N 9,969.4981 E 13,913.8484 Sta 39+48.32

DESCRIPTION OF DRIVEWAY S1W CENTERLINE

Point 20 N 9,947.0937 E 10,880.5898 Sta 10+00.00

Course from 20 to 21 S 0° 03' 56.26" W Dist 50.0000

Point 21 N 9,897.0938 E 10,880.5325 Sta 10+50.00

DESCRIPTION OF DRIVEWAY S1E CENTERLINE

Point 22 N 9,946.9913 E 10,906.7023 Sta 10+00.00

Course from 22 to 23 S 0° 19' 27.94" W Dist 49.9280

Point 23 N 9,897.0641 E 10,906.4196 Sta 10+49.93

DESCRIPTION OF DRIVEWAY S2 CENTERLINE

Point 24 N 9,931.4556 E 11,271.3311 Sta 10+00.00

Course from 24 to 25 S 10° 04' 25.10" W Dist 38.3685

Point 25 N 9,893.6787 E 11,264.6199 Sta 10+38.37

DESCRIPTION OF DRIVEWAY S3 CENTERLINE

Point 26 N 9,930.2500 E 11,552.0618 Sta 10+00.00

Course from 26 to 27 S 2° 22' 26.21" E Dist 23.5101

Point 27 N 9,906.7601 E 11,553.0357 Sta 10+23.51

DESCRIPTION OF DRIVEWAY S4 CENTERLINE

Point 28 N 9,929.9108 E 11,631.0465 Sta 10+00.00

Course from 28 to 29 S 2° 47' 50.09" W Dist 25.3716

Point 29 N 9,904.5695 E 11,629.8083 Sta 10+25.37

DESCRIPTION OF DRIVEWAY S4 CENTERLINE

Point 30 N 9,929.1094 E 11,817.6563 Sta 10+00.00

Course from 30 to 31 S 0° 50' 23.66" E Dist 23.8966

Point 31 N 9,905.2154 E 11,818.0065 Sta 10+23.90

DESCRIPTION OF DRIVEWAY S6 CENTERLINE

Point 32 N 9,925.2084 E 12,356.8162 Sta 10+00.00

Course from 32 to 33 S 5° 58' 39.21" E Dist 24.6201

Point 33 N 9,900.7222 E 12,359.3801 Sta 10+24.62

DESCRIPTION OF DRIVEWAY N1 CENTERLINE

Point 34 N 9,988.2338 E 11,555.9756 Sta 10+00.00

Course from 34 to 35 N 0° 44' 30.25" E Dist 30.9357

Point 35 N 10,019.1668 E 11,556.3761 Sta 10+30.94

DESCRIPTION OF NORTH SIDEWALK CENTERLINE

Curve Data

Curve SWN-1
P.I. Station 10+18.69 N 9,999.5824 E 11,027.8243
Delta = 26° 37' 12.34" (LT)
Degree = 72° 31' 30.81"
Tangent = 18.6897
Length = 36.7046
Radius = 79.0012
External = 2.1807
Long Chord = 36.3754
Mid. Ord. = 2.1221
P.C. Station 10+00.00 N 9,999.5823 E 11,009.1346
P.T. Station 10+36.70 N 10,007.9568 E 11,044.5328
C.C. N 10,078.5835 E 11,009.1341
Back = N 89° 59' 58.83" E
Ahead = N 63° 22' 46.49" E
Chord Bear = N 76° 41' 22.66" E

Curve Data

Curve SWN-2
P.I. Station 10+56.05 N 10,016.6266 E 11,061.8305
Delta = 27° 31' 27.23" (RT)
Degree = 72° 31' 36.65"
Tangent = 19.3487
Length = 37.9504
Radius = 78.9994
External = 2.3350
Long Chord = 37.5865
Mid. Ord. = 2.2679
P.C. Station 10+36.70 N 10,007.9568 E 11,044.5328
P.T. Station 10+74.66 N 10,016.3214 E 11,081.1768
C.C. N 9,937.3318 E 11,079.9307
Back = N 63° 22' 46.49" E
Ahead = S 89° 05' 46.27" E
Chord Bear = N 77° 08' 30.11" E

Course from PT SWN-2 to PC SWN-3 S 89° 05' 46.27" E Dist 80.3858

RECORD DOCUMENTS
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS · M.E. ROMANOWSKI · 94306 · LICENSED · PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011 Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

HORIZONTAL CONTROL SHEET

HALFF
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PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 ALGN 01	HC-1

RECORD DRAWINGS

DESCRIPTION OF NORTH SIDEWALK CENTERLINE

Curve Data

Curve SWN-3
P.I. Station 11+73.96 N 10,015.0421 E 11,180.4747
Delta = 20° 37' 24.93" (RT)
Degree = 55° 05' 31.54"
Tangent = 18.9221
Length = 37.4348
Radius = 104.0000
External = 1.7074
Long Chord = 37.2330
Mid. Ord. = 1.6798
P.C. Station 11+55.04 N 10,015.0534 E 11,161.5526
P.T. Station 11+92.48 N 10,008.3667 E 11,198.1802
C.C. N 9,911.0534 E 11,161.4906
Back = S 89° 57' 57.13" E
Ahead = S 69° 20' 32.20" E
Chord Bear = S 79° 39' 14.66" E

Curve Data

Curve SWN-4
P.I. Station 12+49.82 N 9,988.1377 E 11,251.8344
Delta = 42° 53' 04.07" (LT)
Degree = 39° 14' 37.26"
Tangent = 57.3410
Length = 109.2774
Radius = 146.0000
External = 10.8566
Long Chord = 106.7444
Mid. Ord. = 10.1052
P.C. Station 11+92.48 N 10,008.3667 E 11,198.1802
P.T. Station 13+01.75 N 10,009.8282 E 11,304.9146
C.C. N 10,144.9796 E 11,249.6867
Back = S 69° 20' 32.20" E
Ahead = N 67° 46' 23.73" E
Chord Bear = N 89° 12' 55.77" E

Curve Data

Curve SWN-5
P.I. Station 13+49.44 N 10,027.8675 E 11,349.0597
Delta = 59° 10' 08.61" (RT)
Degree = 68° 12' 33.34"
Tangent = 47.6886
Length = 86.7464
Radius = 84.0000
External = 12.5930
Long Chord = 82.9428
Mid. Ord. = 10.9512
P.C. Station 13+01.75 N 10,009.8282 E 11,304.9146
P.T. Station 13+88.50 N 9,999.2061 E 11,387.1744
C.C. N 9,932.0699 E 11,336.6895
Back = N 67° 46' 23.73" E
Ahead = S 53° 03' 27.65" E
Chord Bear = S 82° 38' 31.96" E

Curve Data

Curve SWN-6
P.I. Station 13+98.12 N 9,993.4257 E 11,394.8614
Delta = 36° 41' 46.54" (LT)
Degree = 197° 34' 17.95"
Tangent = 9.6179
Length = 18.5736
Radius = 29.0000
External = 1.5533
Long Chord = 18.2578
Mid. Ord. = 1.4743
P.C. Station 13+88.50 N 9,999.2061 E 11,387.1744
P.T. Station 14+07.07 N 9,993.3844 E 11,404.4792
C.C. N 10,022.3841 E 11,404.6037
Back = S 53° 03' 27.65" E
Ahead = S 89° 45' 14.20" E
Chord Bear = S 71° 24' 20.92" E

Course from PT SWN-6 to PC SWN-7 S 89° 45' 14.20" E Dist 45.9500

DESCRIPTION OF NORTH SIDEWALK CENTERLINE

Curve Data

Curve SWN-7
P.I. Station 14+60.30 N 9,993.1558 E 11,457.7040
Delta = 28° 09' 59.68" (LT)
Degree = 197° 34' 17.95"
Tangent = 7.2753
Length = 14.2564
Radius = 29.0000
External = 0.8987
Long Chord = 14.1133
Mid. Ord. = 0.8717
P.C. Station 14+53.02 N 9,993.1871 E 11,450.4287
P.T. Station 14+67.28 N 9,996.5625 E 11,464.1324
C.C. N 10,022.1868 E 11,450.5533
Back = S 89° 45' 14.20" E
Ahead = N 62° 04' 46.12" E
Chord Bear = N 76° 09' 45.96" E

Curve Data

Curve SWN-8
P.I. Station 14+69.54 N 9,997.6197 E 11,466.1274
Delta = 28° 09' 59.68" (RT)
Degree = 636° 37' 11.18"
Tangent = 2.2579
Length = 4.4244
Radius = 9.0000
External = 0.2789
Long Chord = 4.3800
Mid. Ord. = 0.2705
P.C. Station 14+67.28 N 9,996.5625 E 11,464.1324
P.T. Station 14+71.70 N 9,997.6100 E 11,468.3853
C.C. N 9,988.6101 E 11,468.3466
Back = N 62° 04' 46.12" E
Ahead = S 89° 45' 14.20" E
Chord Bear = N 76° 09' 45.96" E

Course from PT SWN-8 to 401 S 89° 45' 14.20" E Dist 57.4936

Point 401 N 9,997.3631 E 11,525.8783 Sta 15+29.20

Course from 401 to 402 S 89° 45' 14.20" E Dist 60.2069

Point 402 N 9,997.1045 E 11,586.0847 Sta 15+89.40

Course from 402 to PC SWN-9 S 89° 45' 14.20" E Dist 62.7906

Curve Data

Curve SWN-9
P.I. Station 16+74.40 N 9,996.7395 E 11,671.0802
Delta = 21° 40' 26.04" (LT)
Degree = 49° 23' 34.49"
Tangent = 22.2057
Length = 43.8806
Radius = 116.0000
External = 2.1063
Long Chord = 43.6194
Mid. Ord. = 2.0687
P.C. Station 16+52.19 N 9,996.8349 E 11,648.8747
P.T. Station 16+96.08 N 10,004.8519 E 11,691.7510
C.C. N 10,112.8338 E 11,649.3729
Back = S 89° 45' 14.20" E
Ahead = N 68° 34' 19.76" E
Chord Bear = N 79° 24' 32.78" E

Curve Data

Curve SWN-10
P.I. Station 17+49.95 N 10,024.5349 E 11,741.9045
Delta = 46° 58' 10.26" (RT)
Degree = 46° 12' 22.59"
Tangent = 53.8775
Length = 101.6518
Radius = 124.0000
External = 11.1991
Long Chord = 98.8293
Mid. Ord. = 10.2714
P.C. Station 16+96.08 N 10,004.8519 E 11,691.7510
P.T. Station 17+97.73 N 10,001.3047 E 11,790.5166
C.C. N 9,889.4230 E 11,737.0519
Back = N 68° 34' 19.76" E
Ahead = S 64° 27' 29.98" E
Chord Bear = S 87° 56' 35.11" E

DESCRIPTION OF NORTH SIDEWALK CENTERLINE

Curve Data

Curve SWN-11
P.I. Station 18+24.29 N 9,989.8505 E 11,814.4860
Delta = 60° 00' 49.87" (LT)
Degree = 124° 33' 21.75"
Tangent = 26.5655
Length = 48.1822
Radius = 46.0000
External = 7.1199
Long Chord = 46.0096
Mid. Ord. = 6.1656
P.C. Station 17+97.73 N 10,001.3047 E 11,790.5166
P.T. Station 18+45.91 N 10,004.8868 E 11,836.3866
C.C. N 10,042.8092 E 11,810.3503
Back = S 64° 27' 29.98" E
Ahead = N 55° 31' 40.15" E
Chord Bear = N 85° 32' 05.09" E

Curve Data

Curve SWN-12
P.I. Station 18+62.18 N 10,014.0956 E 11,849.7995
Delta = 36° 44' 10.63" (RT)
Degree = 116° 55' 48.58"
Tangent = 16.2699
Length = 31.4173
Radius = 49.0000
External = 2.6305
Long Chord = 30.8819
Mid. Ord. = 2.4965
P.C. Station 18+45.91 N 10,004.8868 E 11,836.3866
P.T. Station 18+77.33 N 10,013.4529 E 11,866.0567
C.C. N 9,964.4911 E 11,864.1209
Back = N 55° 31' 40.15" E
Ahead = S 87° 44' 09.22" E
Chord Bear = N 73° 53' 45.47" E

Course from PT SWN-12 to PC SWN-13 S 89° 59' 52.20" E Dist 82.5311

RECORD DOCUMENTS
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M.F. ROMANOWSKI
56306
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P.E. 12/8/2011
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DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

HORIZONTAL CONTROL SHEET

HALFF
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PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 ALGN 02	HC-2

RECORD DRAWINGS

DESCRIPTION OF NORTH SIDEWALK CENTERLINE

Curve Data

Curve SWN-13
P.I. Station 19+74.62 N 10,013.4497 E 11,963.3499
Delta = 32° 53' 51.75" (RT)
Degree = 114° 35' 29.61"
Tangent = 14.7621
Length = 28.7087
Radius = 50.0000
External = 2.1337
Long Chord = 28.3159
Mid. Ord. = 2.0464
P.C. Station 19+59.86 N 10,013.4497 E 11,948.5878
P.T. Station 19+88.57 N 10,005.4318 E 11,975.7448
C.C. N 9,963.4497 E 11,948.5878
Back = Due East
Ahead = S 57° 06' 08.25" E
Chord Bear = S 73° 33' 04.13" E

Course from PT SWN-13 to PC SWN-14 S 57° 06' 08.25" E Dist 3.8903

Curve Data

Curve SWN-14
P.I. Station 20+07.10 N 9,995.3643 E 11,991.3082
Delta = 32° 39' 05.95" (LT)
Degree = 114° 35' 29.61"
Tangent = 14.6455
Length = 28.4939
Radius = 50.0000
External = 2.1008
Long Chord = 28.1099
Mid. Ord. = 2.0161
P.C. Station 19+92.46 N 10,003.3189 E 11,979.0112
P.T. Station 20+20.95 N 9,995.3014 E 12,005.9536
C.C. N 10,045.3009 E 12,006.1683
Back = S 57° 06' 08.25" E
Ahead = S 89° 45' 14.20" E
Chord Bear = S 73° 25' 41.22" E

Course from PT SWN-14 to 403 S 89° 45' 14.20" E Dist 7.3150

Point 403 N 9,995.2700 E 12,013.2685 Sta 20+28.27

RECORD DOCUMENTS
December, 2011
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The Design Professional has not verified the accuracy and / or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result

Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

12/6/2011
P.E.
Signature of Registrant Date

SHEET 11 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

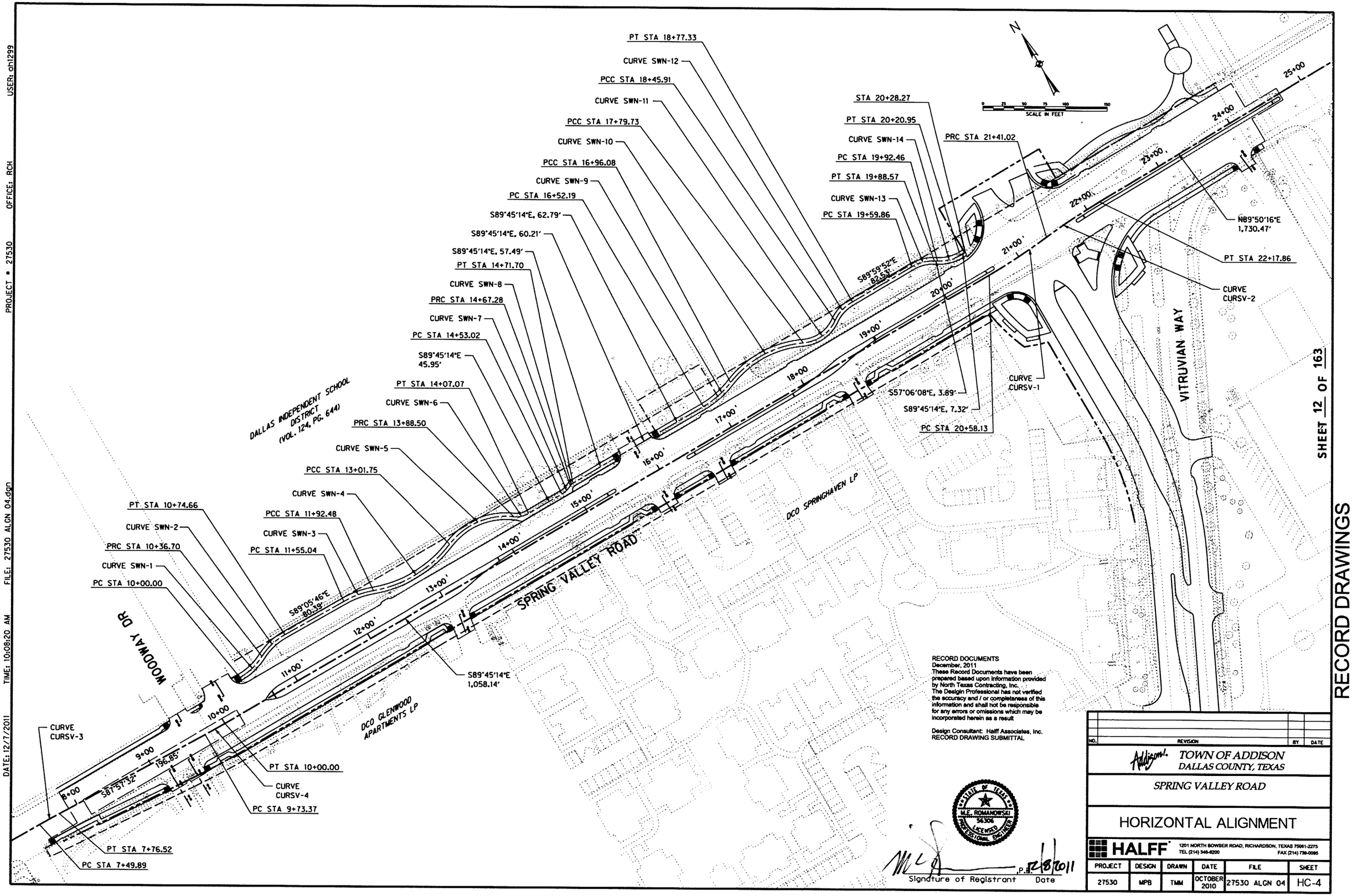
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

HORIZONTAL CONTROL SHEET

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 ALGN 03	HC-3



RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

M L R P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

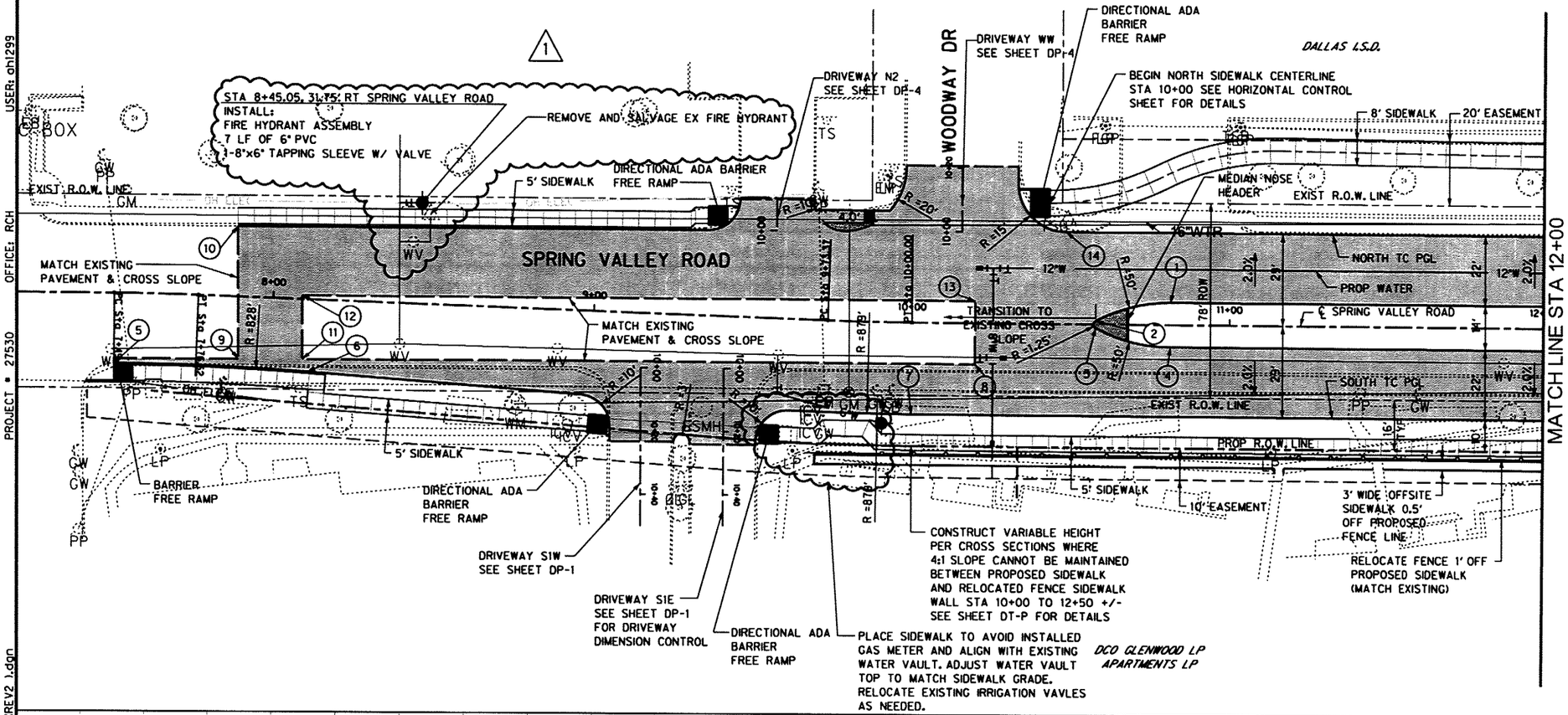
SPRING VALLEY ROAD

HORIZONTAL ALIGNMENT

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 ALGN 04	HC-4

RECORD DRAWINGS


STA 8+45.05, 31.75' RT SPRING VALLEY ROAD
INSTALL:
FIRE HYDRANT ASSEMBLY
7 LF OF 6" PVC
1-8"x6" TAPPING SLEEVE W/ VALVE
REMOVE AND SALVAGE EX FIRE HYDRANT
DRIVEWAY N2
SEE SHEET DP-4
DRIVEWAY WW
SEE SHEET DP-4
WOODWAY DR
DIRECTIONAL ADA
BARRIER
FREE RAMP
DALLAS I.S.D.
BEGIN NORTH SIDEWALK CENTERLINE
STA 10+00 SEE HORIZONTAL CONTROL
SHEET FOR DETAILS
8' SIDEWALK
20' EASEMENT
5' SIDEWALK
DIRECTIONAL ADA BARRIER
FREE RAMP
MEDIAN NOSE
HEADER
EXIST R.O.W. LINE
EXIST R.O.W. LINE
MATCH EXISTING
PAVEMENT & CROSS SLOPE
SPRING VALLEY ROAD
12"W
NORTH TC PGL
PROP WATER
MATCH EXISTING
PAVEMENT & CROSS SLOPE
TRANSITION TO
EXISTING CROSS
SLOPE
℄ SPRING VALLEY ROAD
SOUTH TC PGL
EXIST R.O.W. LINE
PROP R.O.W. LINE
5' SIDEWALK
10' EASEMENT
3' WIDE OFFSITE
SIDEWALK 0.5'
OFF PROPOSED
FENCE LINE
RELOCATE FENCE 1' OFF
PROPOSED SIDEWALK
(MATCH EXISTING)
BARRIER
FREE RAMP
DIRECTIONAL ADA
BARRIER
FREE RAMP
DRIVEWAY S1W
SEE SHEET DP-1
DRIVEWAY S1E
SEE SHEET DP-1
FOR DRIVEWAY
DIMENSION CONTROL
DIRECTIONAL ADA
BARRIER
FREE RAMP
CONSTRUCT VARIABLE HEIGHT
PER CROSS SECTIONS WHERE
4:1 SLOPE CANNOT BE MAINTAINED
BETWEEN PROPOSED SIDEWALK
AND RELOCATED FENCE SIDEWALK
WALL STA 10+00 TO 12+50 +/-
SEE SHEET DT-P FOR DETAILS
PLACE SIDEWALK TO AVOID INSTALLED
GAS METER AND ALIGN WITH EXISTING
WATER VAULT. ADJUST WATER VAULT
TOP TO MATCH SIDEWALK GRADE.
RELOCATE EXISTING IRRIGATION VAVLES
AS NEEDED.
DCO GLENWOOD LP
APARTMENTS LP
MATCH LINE STA 12+00
LEGEND
PERMANENT REINFORCED CONCRETE
PAVEMENT CONSTRUCTION
CONC MEDIAN NOSE PAVER
CONC PAVER
SCALE IN FEET
N
RECORD DOCUMENTS
December, 2011
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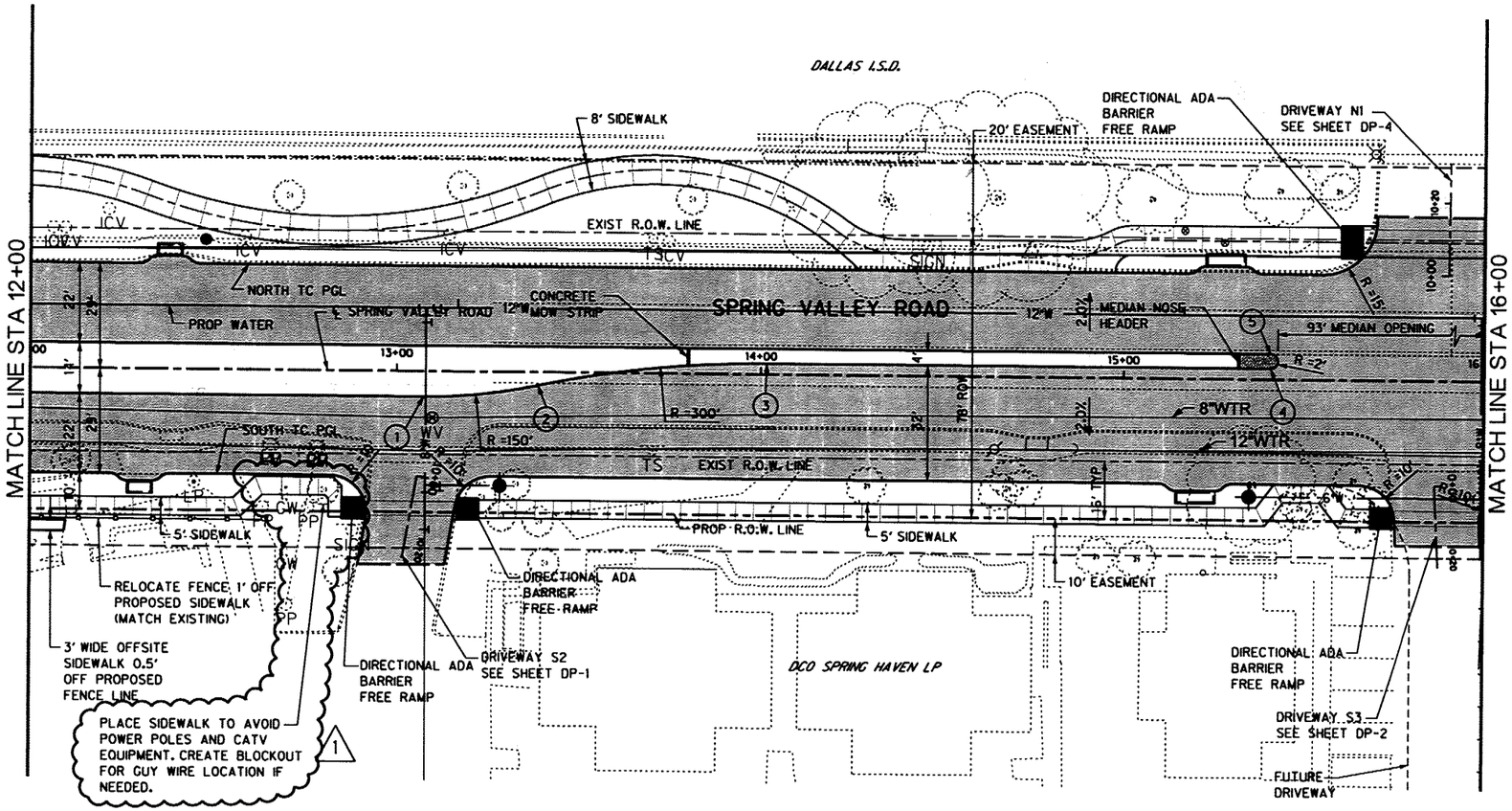
incorporated herein as a result
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL
BACK OF CURB PC/PT/PRC/PCC
SPRING VALLEY ROAD
NO DESC ℄ STATION OFFSET
1 PC 10+81.35 7.00' LT
2 PT 10+57.80 1.11' LT
3 PC 10+57.80 1.10' RT
4 PT 10+81.37 7.00' RT
5 PC 7+49.89 22.21' RT
6 PT 8+11.46 22.94' RT
7 PT 9+99.87 29.00' LT
8 PI 10+20.00 13.02' RT
9 PI 7+89.71 19.67' RT
10 PI 7+88.18 22.11' LT
11 PI 8+09.70 18.96' RT
12 PI 8+08.97 1.08' LT
13 PI 10+20.00 6.96' LT
14 PC 10+48.36 29.00' LT
STA 10+31.34
FL=587.86 +/-
MATCH EX
PAVEMENT
(-)2.21%
PROP NORTH TC / PGL
EXIST GRADE
NORTH TOP OF CURB PROFILE
EXIST GRADE
(-)2.21%
PROP SOUTH TC / PGL
SOUTH TOP OF CURB PROFILE
595
590
585
580
587.45
586.34
585.24
584.13
8+00
9+00
10+00
11+00
12+00
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
P.E.
12/8/2011
Signature of Registrant Date
1 WATER LINE AND SIDEWALK REVISION MER 2/09/11
2 PAVING AND SIDEWALK REVISION MER 3/17/11
NO. REVISION BY DATE
TOWN OF ADDISON
DALLAS COUNTY, TEXAS
SPRING VALLEY ROAD
PAVING PLAN AND PROFILE
STA 7+49.89 TO 12+00
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095
PROJECT DESIGN DRAWN DATE FILE SHEET
27530 MPB TMM OCTOBER 2010 27530 PAVM 01 P1
SHEET 13 OF 163
RECORD DRAWINGS
USER: ahl299
OFFICE: RCH
PROJECT # 27530
FILE: 27530 PAVM 01 (REV2).dgn
TIME: 10:08:56 AM
DATE: 12/7/2011



LEGEND

- PERMANENT REINFORCED CONCRETE PAVEMENT CONSTRUCTION
- CONC MEDIAN NOSE PAVER
- CONC PAVER

N

SCALE IN FEET

BACK OF CURB PC/PT/PRC/PCC
SPRING VALLEY ROAD

NO	DESC	℄ STATION	OFFSET
1	PC	13+07.31	7.00' RT
2	PRC	13+38.75	3.67' RT
3	PT	14+01.65	3.00' LT
4	PC	15+40.51	3.00' LT
5	PT	15+40.51	7.00' LT

RECORD DOCUMENTS
December, 2011
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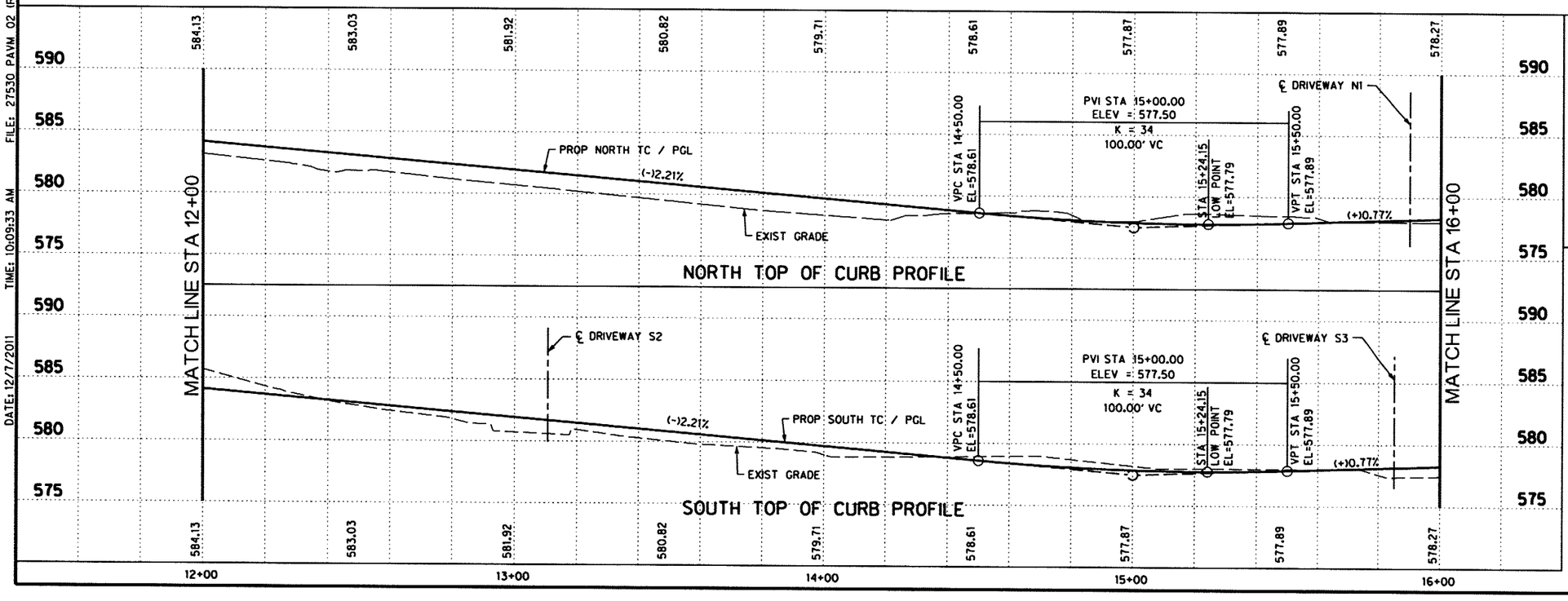
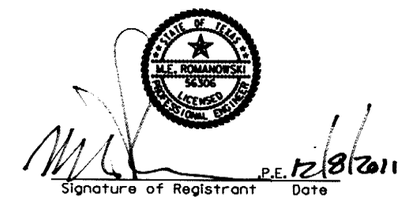
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 14 OF 163

RECORD DRAWINGS





P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE
1	SIDEWALK RE-ALIGNMENT	MER	1/27/11

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

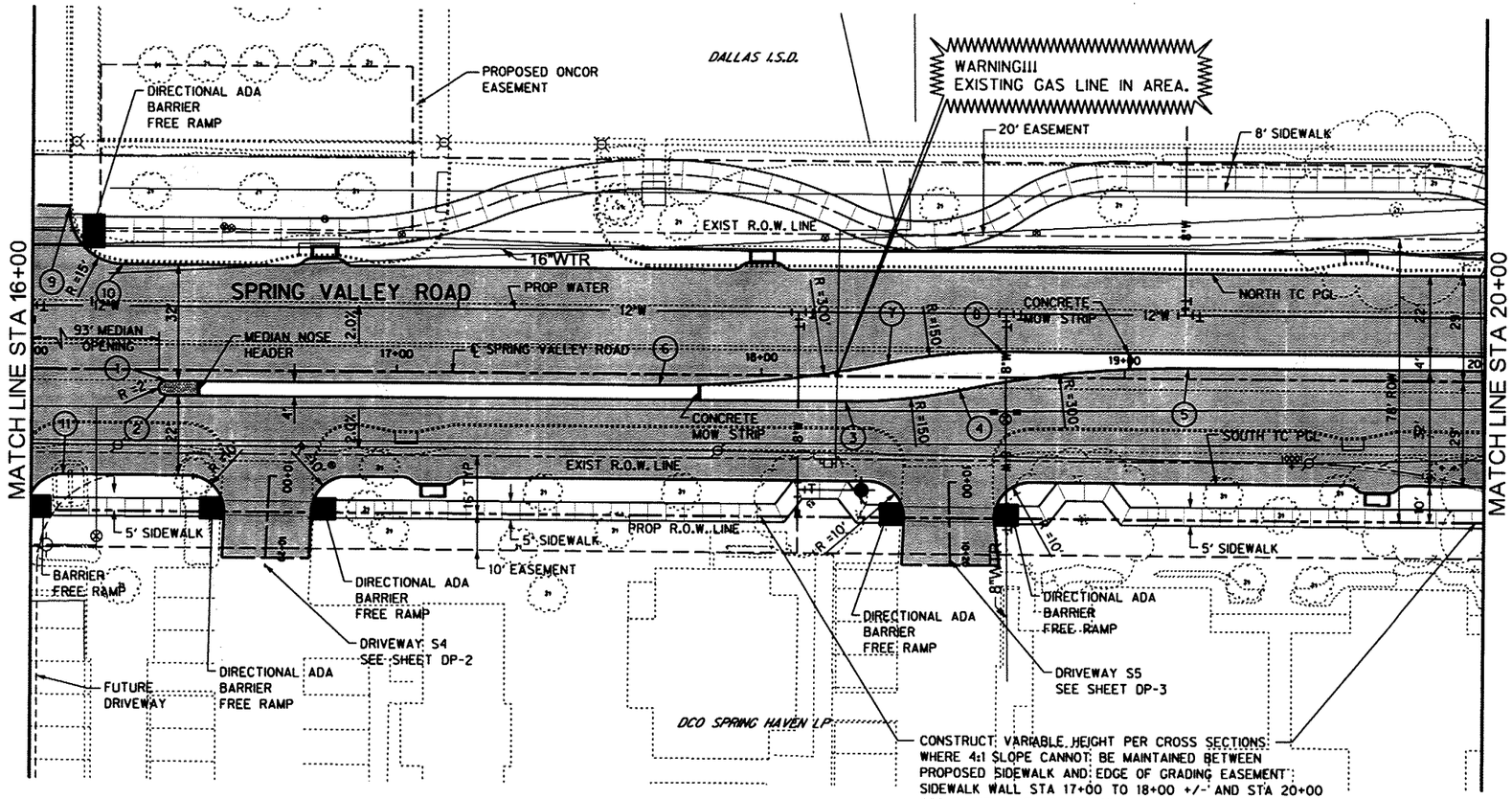
SPRING VALLEY ROAD

PAVING PLAN AND PROFILE STA 12+00 TO 16+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PAVM02	P2

USER: dh1299
PROJECT • 27530 OFFICE: RCH
FILE: 27530 PAVM 02 (REV 1).dgn
TIME: 10:09:33 AM
DATE: 12/7/2011



LEGEND

- PERMANENT REINFORCED CONCRETE PAVEMENT CONSTRUCTION
- CONC MEDIAN NOSE PAVER
- CONC PAVER

N

SCALE IN FEET

BACK OF CURB PC/PT/PRC/PCC
SPRING VALLEY ROAD

NO	DESC	℄ STATION	OFFSET
1	PC	16+37.20	3.00' RT
2	PT	16+37.20	7.00' RT
3	PC	18+23.31	7.00' RT
4	PRC	18+54.76	3.67' RT
5	PT	19+17.65	3.00' LT
6	PC	17+72.08	3.00' RT
7	PRC	18+34.97	3.67' LT
8	PT	18+66.42	7.00' LT
9	PC	16+10.34	44.13' LT
10	PT	16+25.34	29.00' LT
11	PT	16+08.89	29.00' RT

RECORD DOCUMENTS
December, 2011
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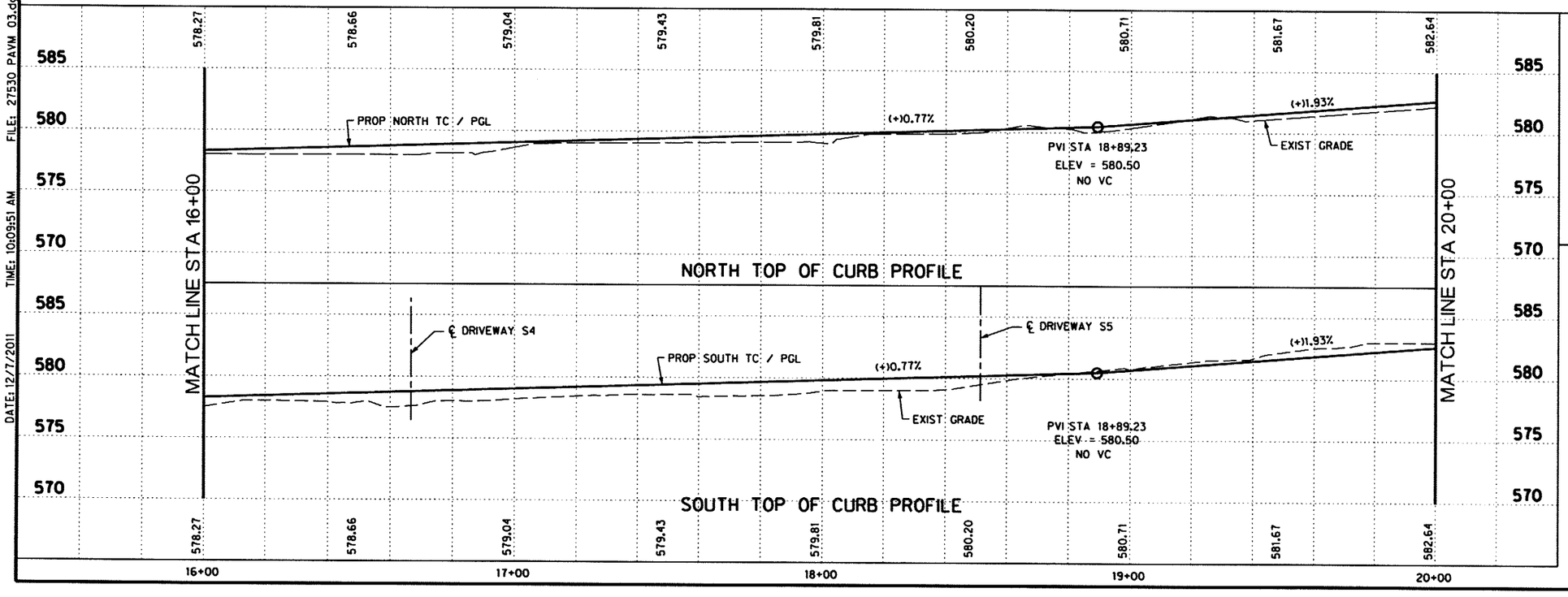
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL



M.E. ROMANOWSKI 56306 LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

PAVING PLAN AND PROFILE
STA 16+00 TO 20+00

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275 TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PAVM03	P3

SHEET 15 OF 163

RECORD DRAWINGS

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PROJECT # 27530 OFFICE: RCH
FILE: 27530 PAVM 03.dgn
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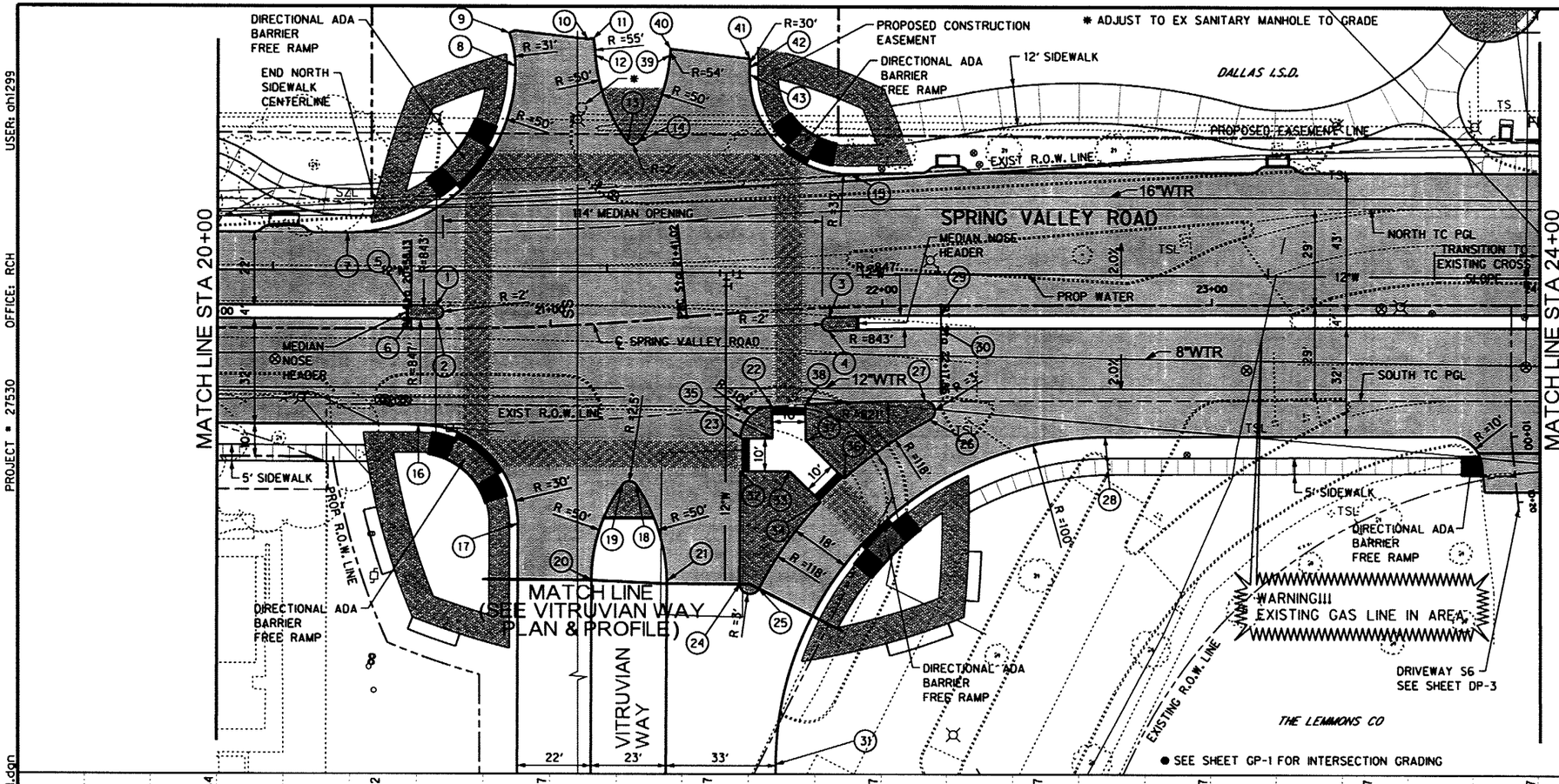
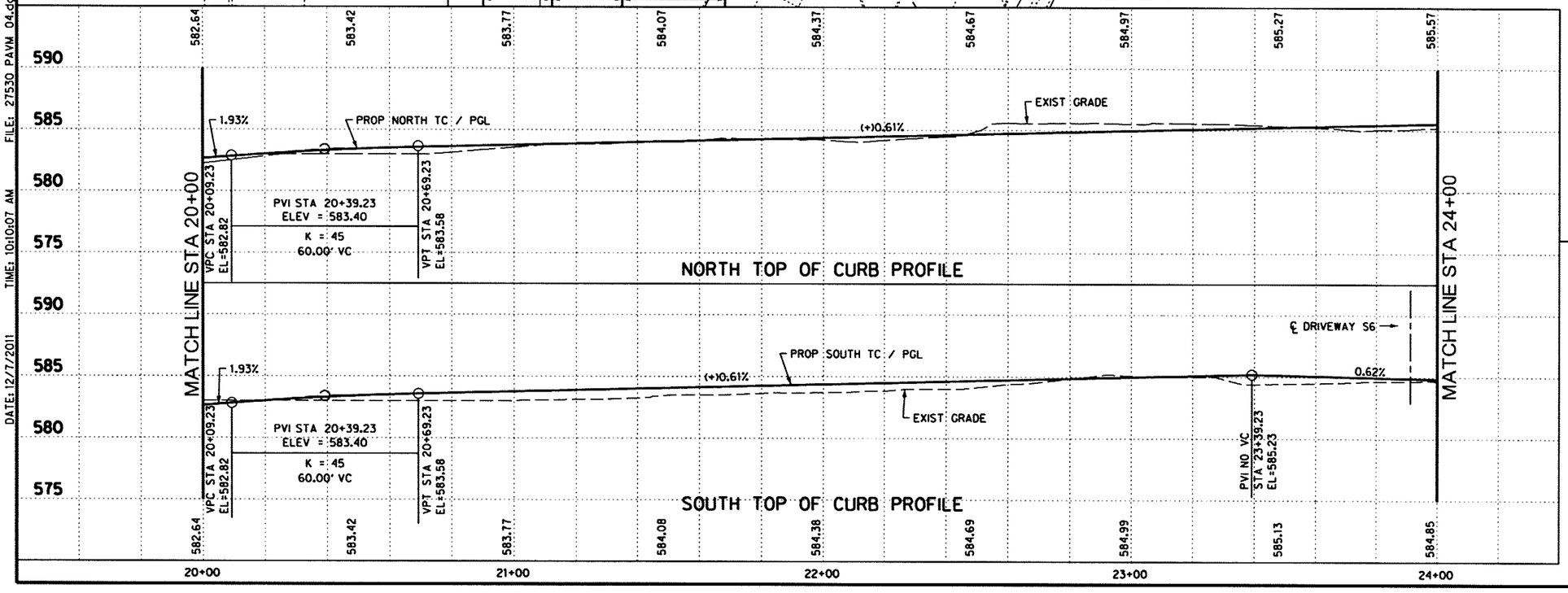
DATE: 12/7/2011





LEGEND

- PERMANENT REINFORCED CONCRETE PAVEMENT CONSTRUCTION
- CONC MEDIAN NOSE PAVER
- CONC PAVER

BACK OF CURB PC/PT/PRC/PCC
SPRING VALLEY ROAD

NO	DESC	℄ STATION	OFFSET	NO	DESC	℄ STATION	OFFSET
1	PC	20+65.69	7.00' LT	22	PC	21+64.97	29.00' RT
2	PT	20+65.69	3.00' LT	23	PT	21+54.42	38.03' RT
3	PC	21+83.65	3.00' RT	24	PC	21+50.40	82.20' RT
4	PT	21+83.65	7.00' RT	25	PT	21+56.54	84.02' RT
5	PCC	20+58.14	7.00' LT	26	PC	22+14.20	34.68' RT
6	PCC	20+58.14	3.00' LT	27	PT	22+12.80	29.00' RT
7	PC	20+39.17	29.00' LT	28	PC	22+67.48	40.00' RT
8	PCC	20+92.35	79.05' LT	29	PCC	22+17.86	3.00' RT
9	PT	20+90.74	89.18' LT	30	PCC	22+17.86	7.00' RT
10	PI	21+16.60	86.18' LT	31	PT	21+57.83	137.48' RT
11	PC	21+18.60	86.33' LT	32	PI	21+53.55	48.00' RT
12	PCC	21+18.87	81.20' LT	33	PI	21+69.24	49.09' RT
13	PCC	21+27.23	54.31' LT	34	PI	21+78.48	58.75' RT
14	PCC	21+30.65	54.04' LT	35	PI	21+64.34	38.75' RT
15	PT	21+92.34	40.00' LT	36	PI	21+86.40	52.03' RT
16	PC	20+60.26	29.00' RT	37	PI	21+74.77	39.95' RT
17	PT	20+88.23	59.58' RT	38	PI	21+75.34	29.00' RT
18	PT	21+22.03	49.47' RT	39	PCC	21+43.35	79.37' LT
19	PT	21+18.21	49.20' RT	40	PI	21+43.65	81.16' LT
20	PC	21+07.82	77.58' RT	41	PC	21+65.17	76.34' LT
21	PC	21+29.19	79.14' RT	42	PT	21+64.89	73.67' LT
				43	PC	21+64.76	71.61' LT

RECORD DOCUMENTS
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/7/11

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

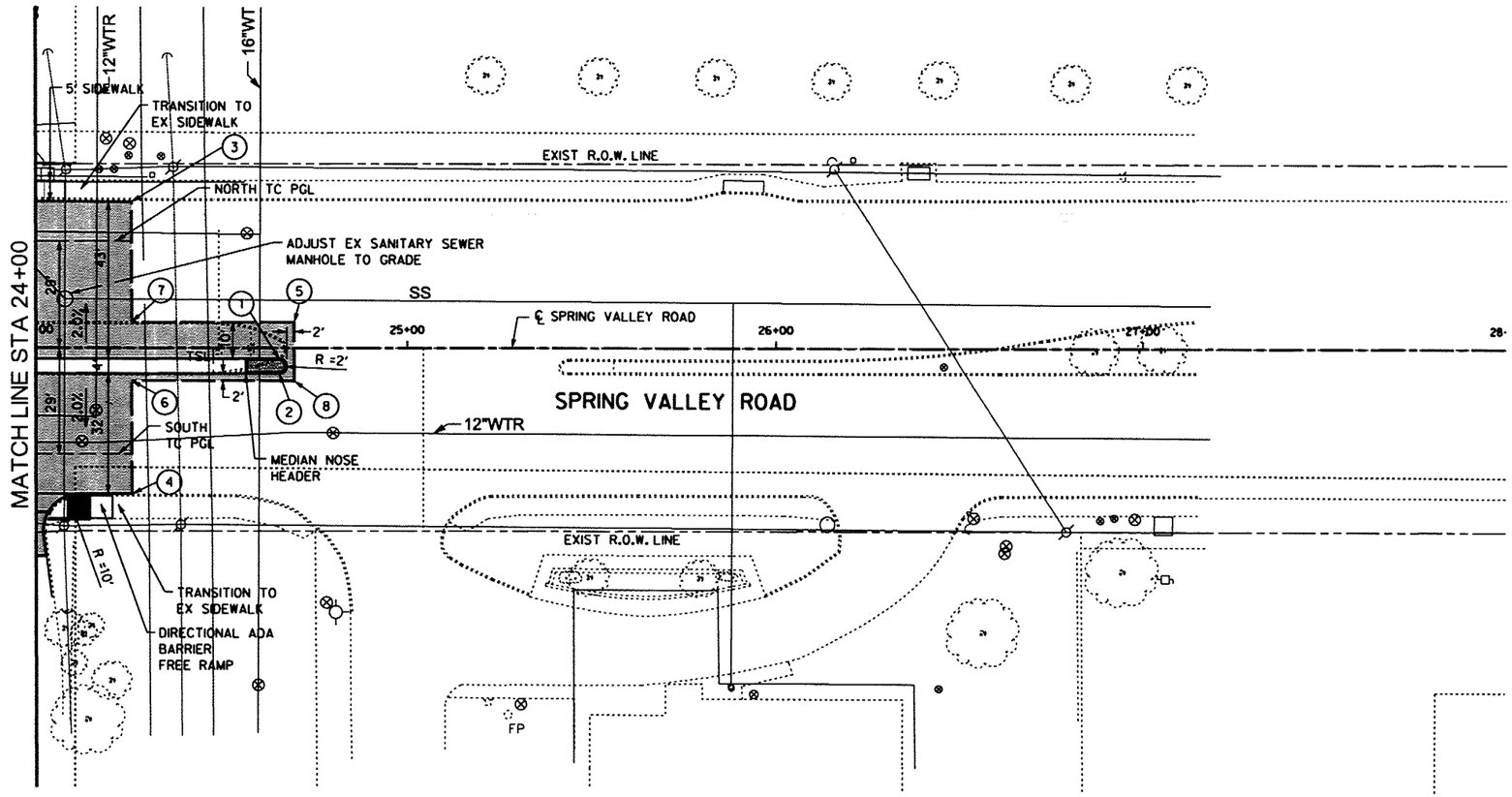
PAVING PLAN AND PROFILE STA 20+00 TO 24+00

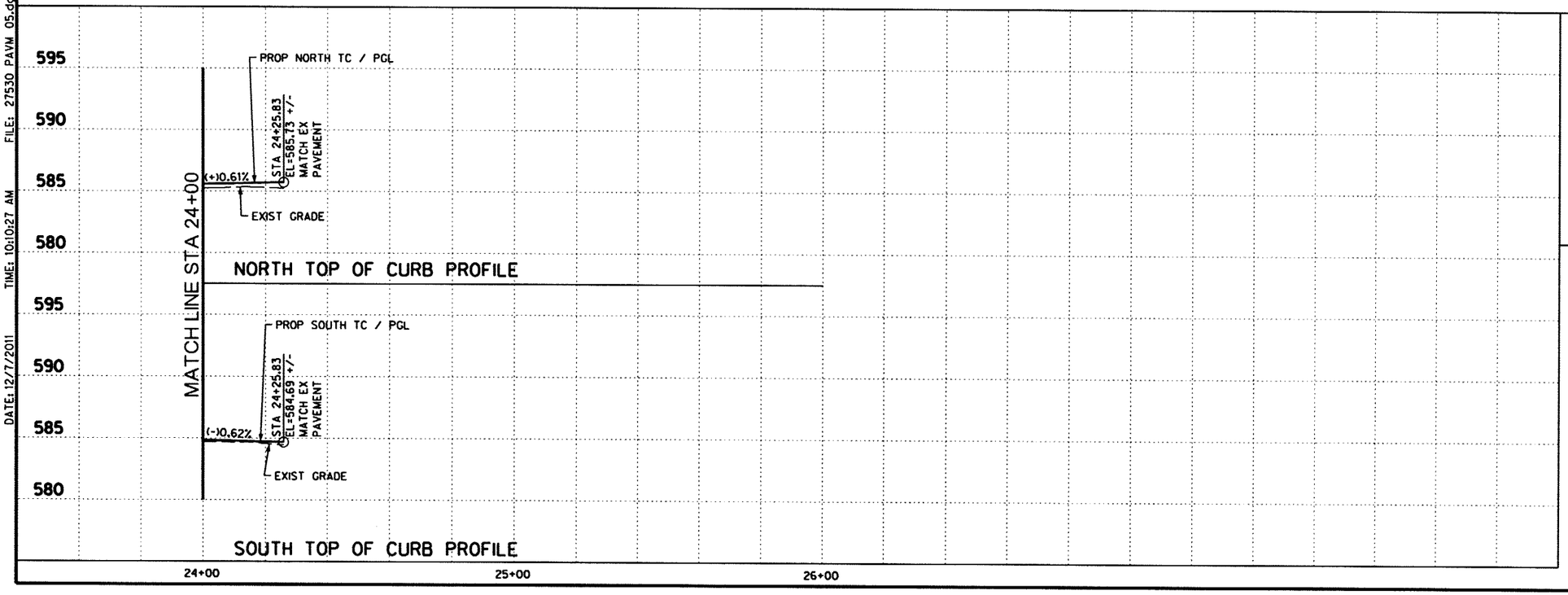
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PAVM04	P4

SHEET 16 OF 163

RECORD DRAWINGS





LEGEND

- PERMANENT REINFORCED CONCRETE PAVEMENT CONSTRUCTION
- CONC MEDIAN NOSE PAVER
- CONC PAVER

N

SCALE IN FEET

BACK OF CURB PC/PT/PRC/PCC
SPRING VALLEY ROAD

NO	DESC	℄ STATION	OFFSET
1	PC	24+65.59	3.00' RT
2	PT	24+65.59	7.00' RT
3	PI	24+25.83	39.68' LT
4	PI	24+26.02	39.84' RT
5	PI	24+69.57	7.00' LT
6	PI	24+25.83	9.00' RT
7	PI	24+25.83	7.00' LT
8	PI	24+69.59	9.00' RT

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED PROFESSIONAL ENGINEER

P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

PAVING PLAN AND PROFILE STA 24+00 TO 26+11.52

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275 TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PAVM05	P5

SHEET 17 OF 163

RECORD DRAWINGS

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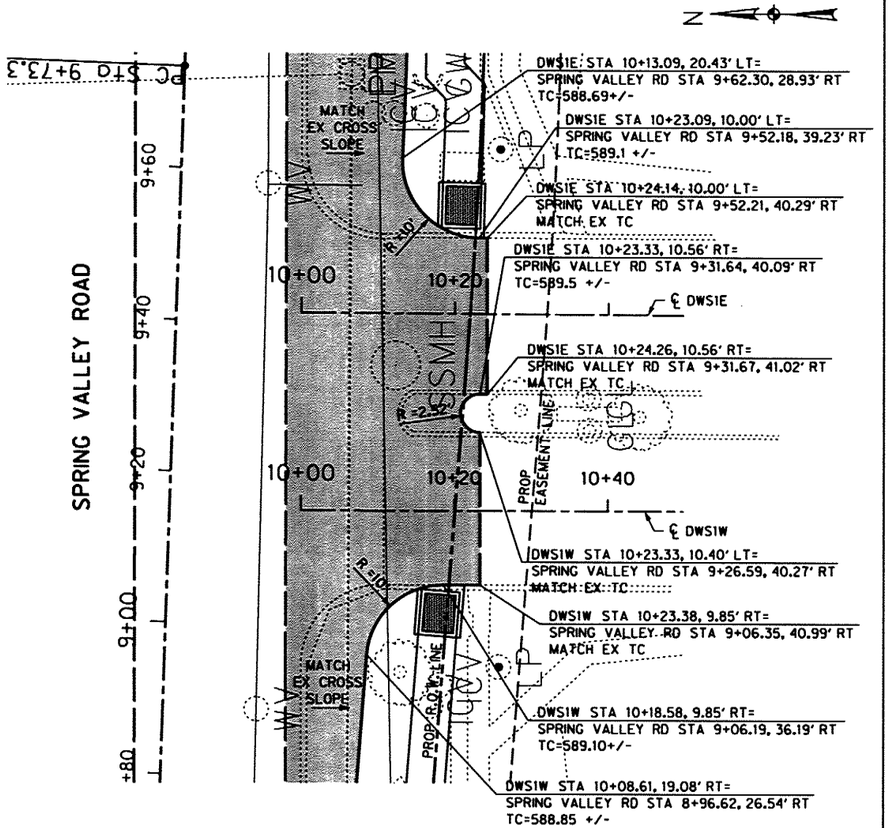
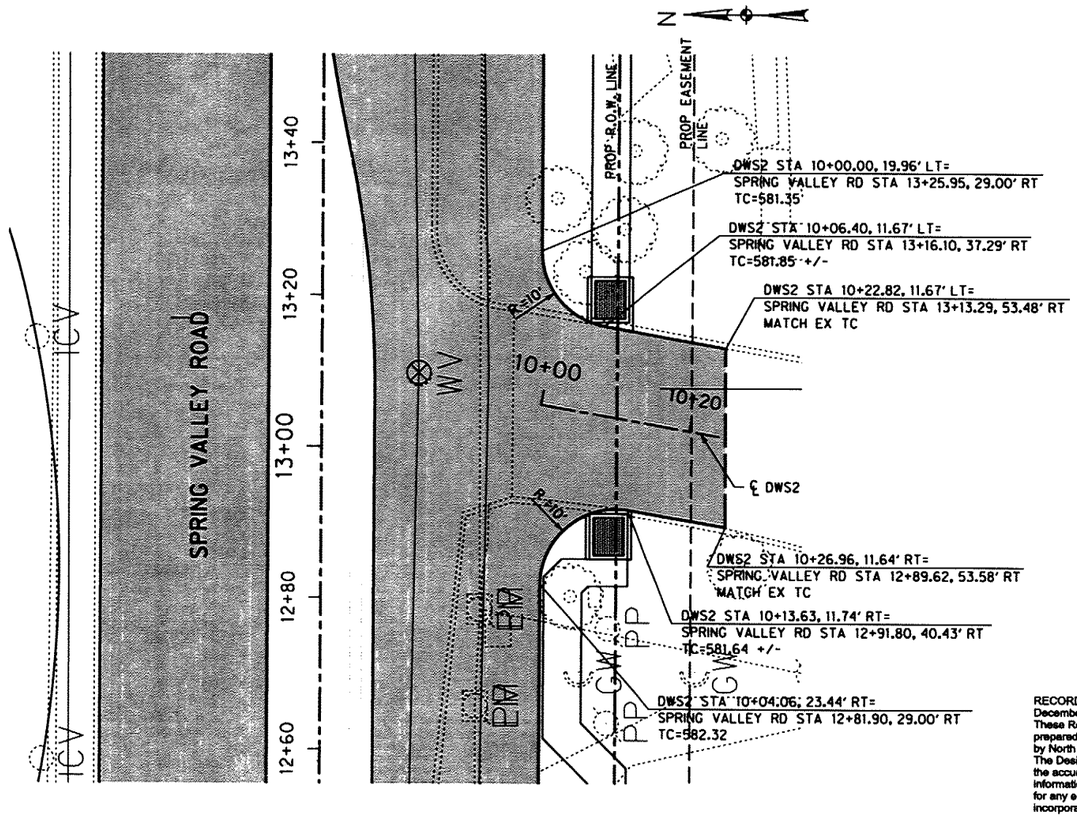
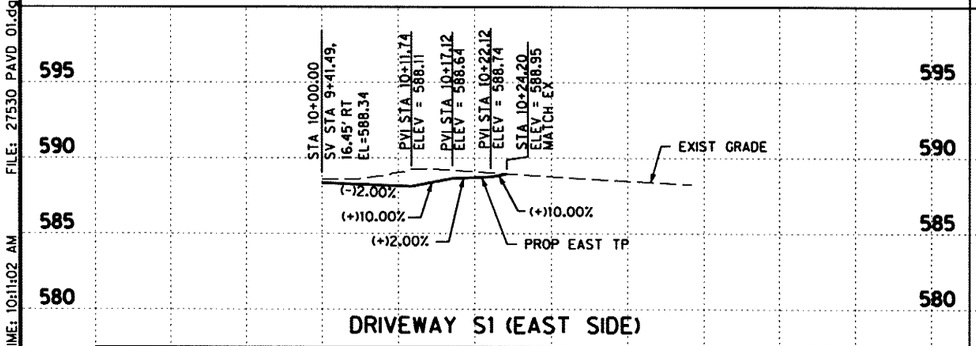
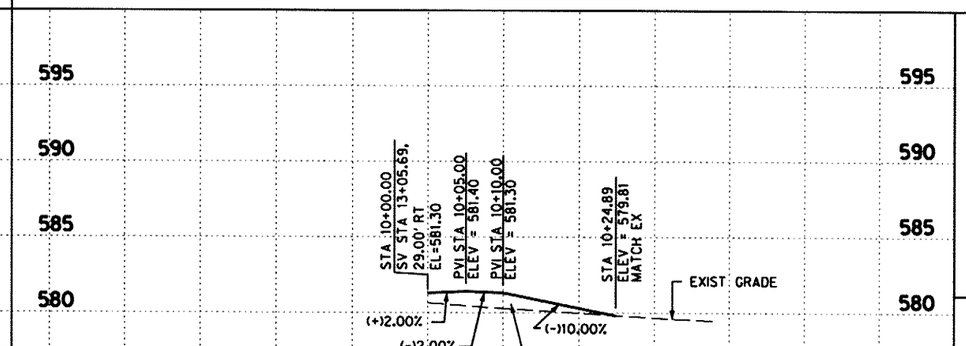
OFFICE: RCH
PROJECT # 27530
FILE: 27530 PAVM 05.dgn
TIME: 10:10:27 AM
DATE: 12/7/2011









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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/6/2011

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

DRIVEWAY PLAN AND PROFILE S1 & S2

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PAVD 01	DP-1

SHEET 18 OF 163

RECORD DRAWINGS

USER: ahl299
PROJECT # 27530 OFFICE: RCH
FILE: 27530 PAVD 01.dgn
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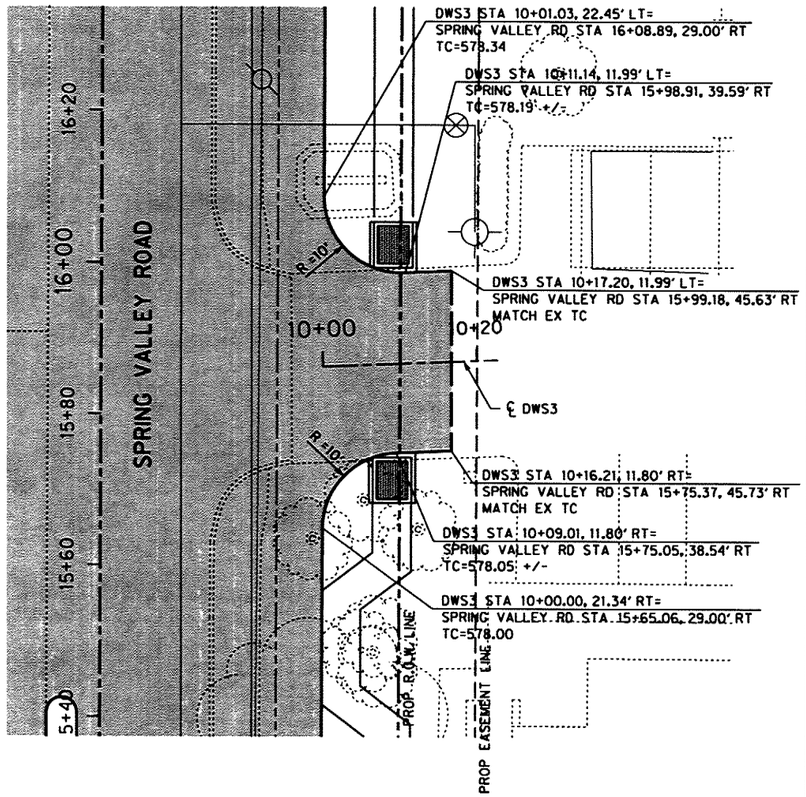
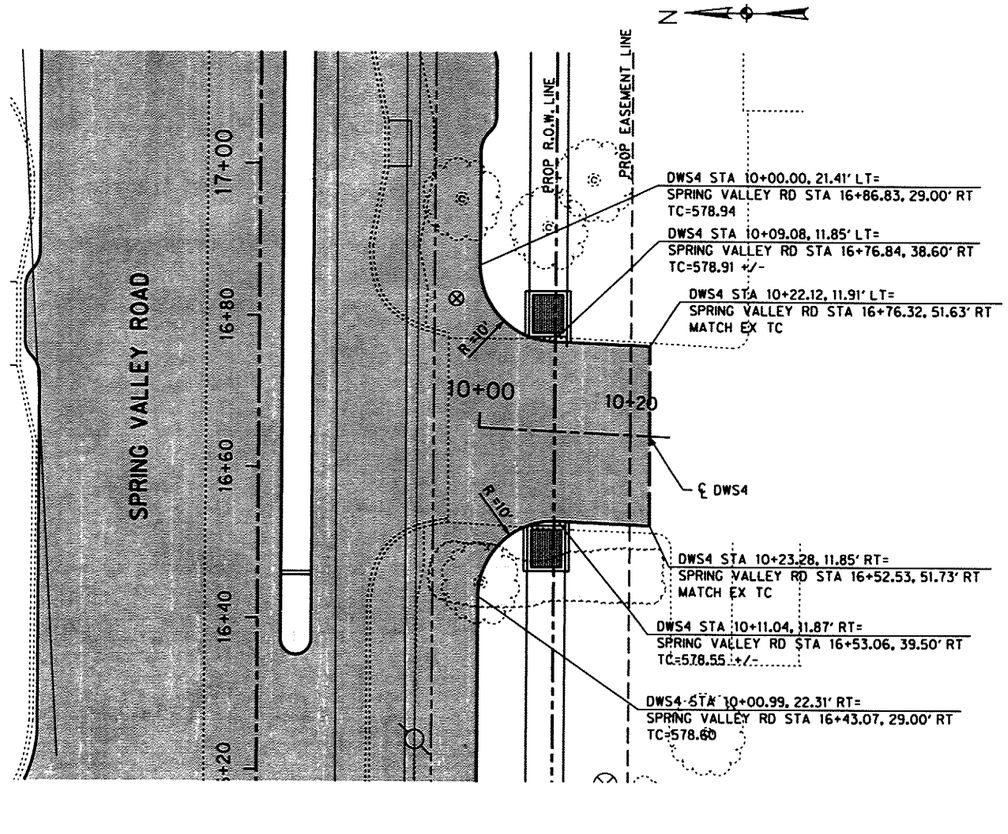
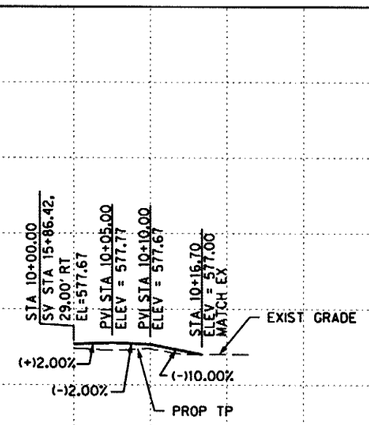
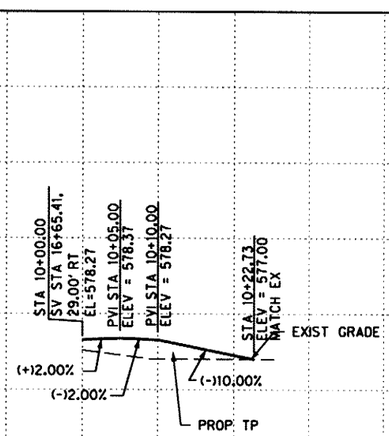
DATE: 12/7/2011







DRIVEWAY S3



DRIVEWAY S4

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 19 OF 163

STATE OF TEXAS
M.E. ROMANOWSKI
54306
LICENSED
PROFESSIONAL ENGINEER

12/8/2011
Signature of Registrant, P.E. Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

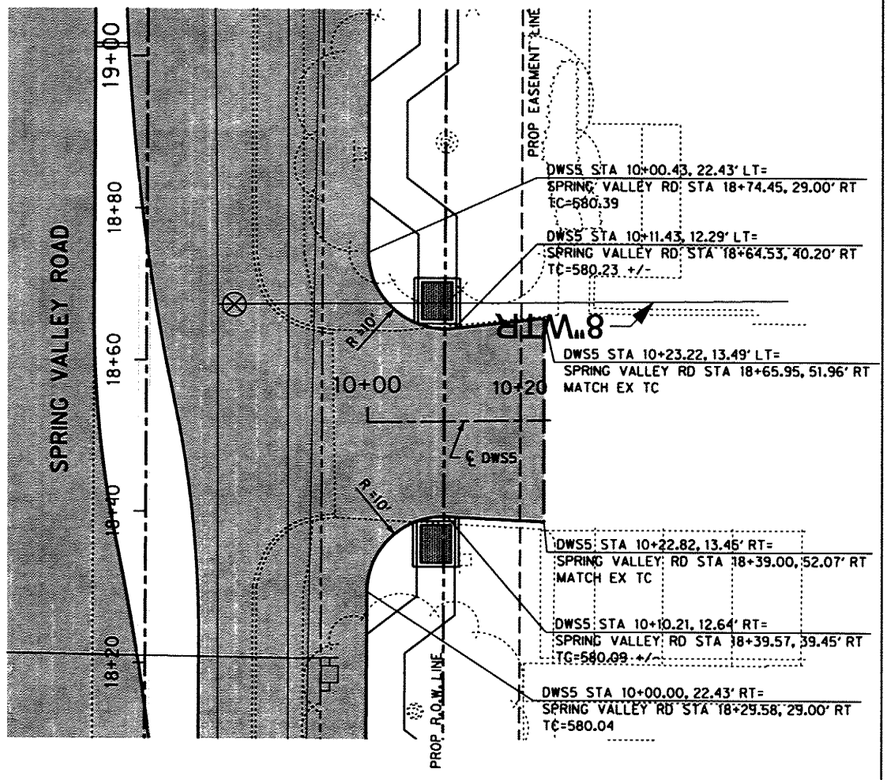
SPRING VALLEY ROAD

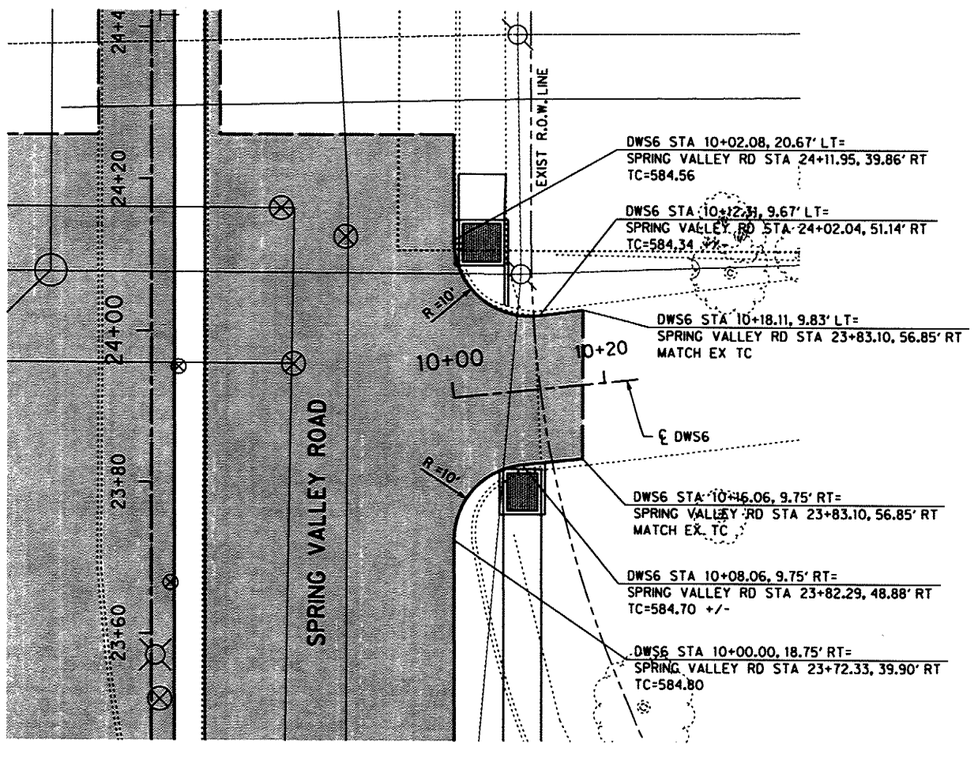
DRIVEWAY PLAN AND PROFILE S3 & S4

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PAVD 02	DP-2

RECORD DRAWINGS





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SCALE IN FEET

RECORD DOCUMENTS
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc.
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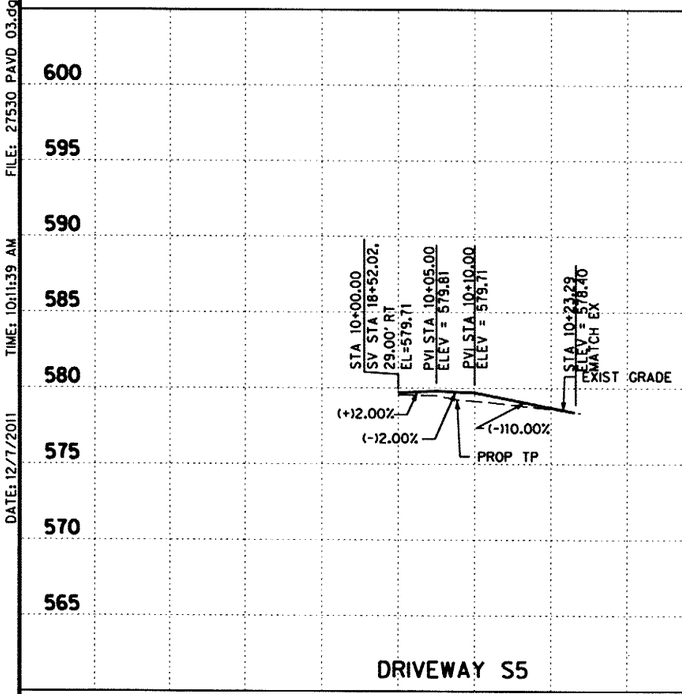
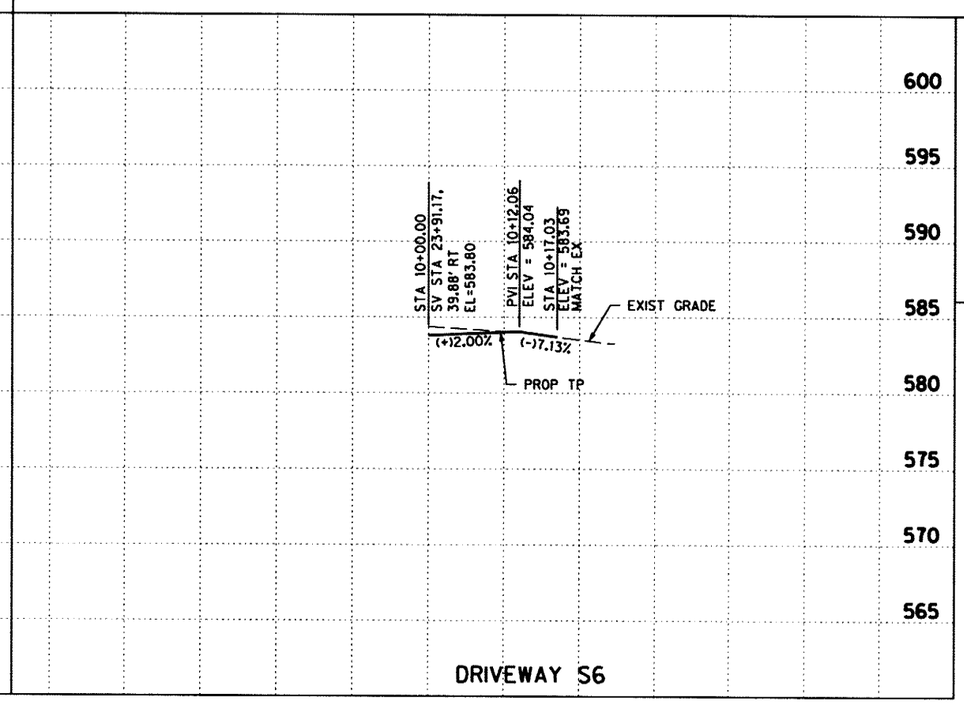
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

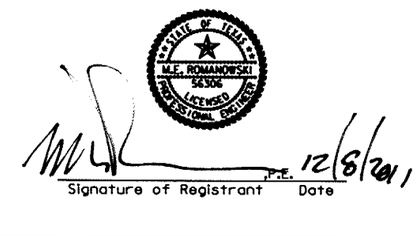
SHEET 20 OF 163



DRIVEWAY S5



DRIVEWAY S6



NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

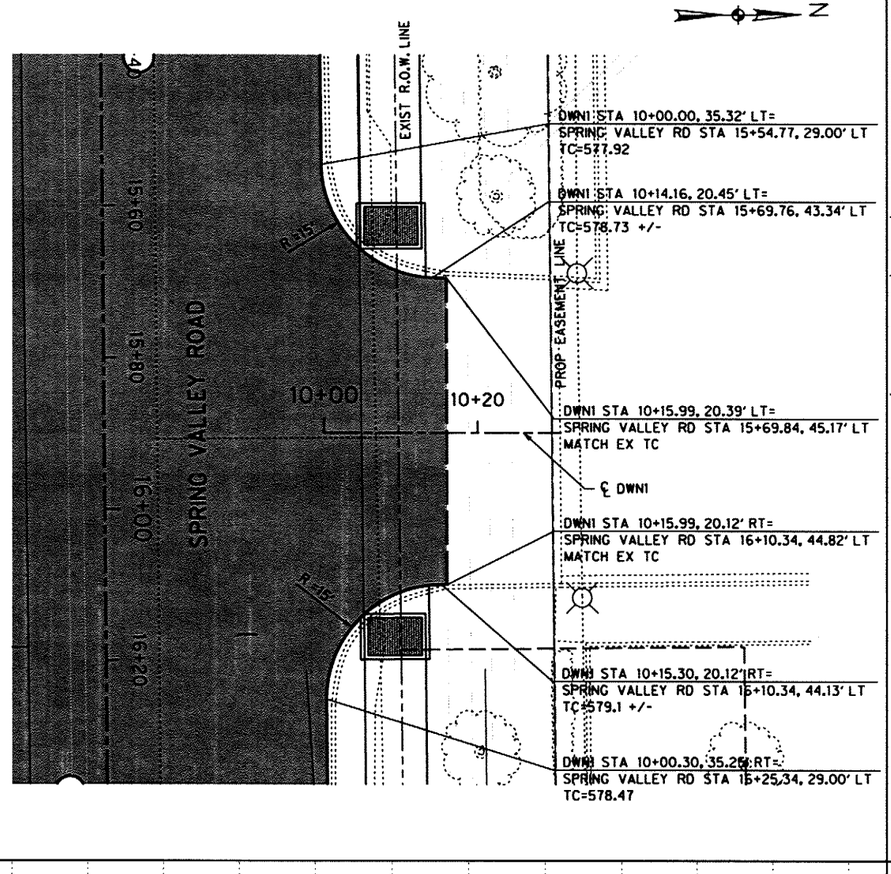
SPRING VALLEY ROAD

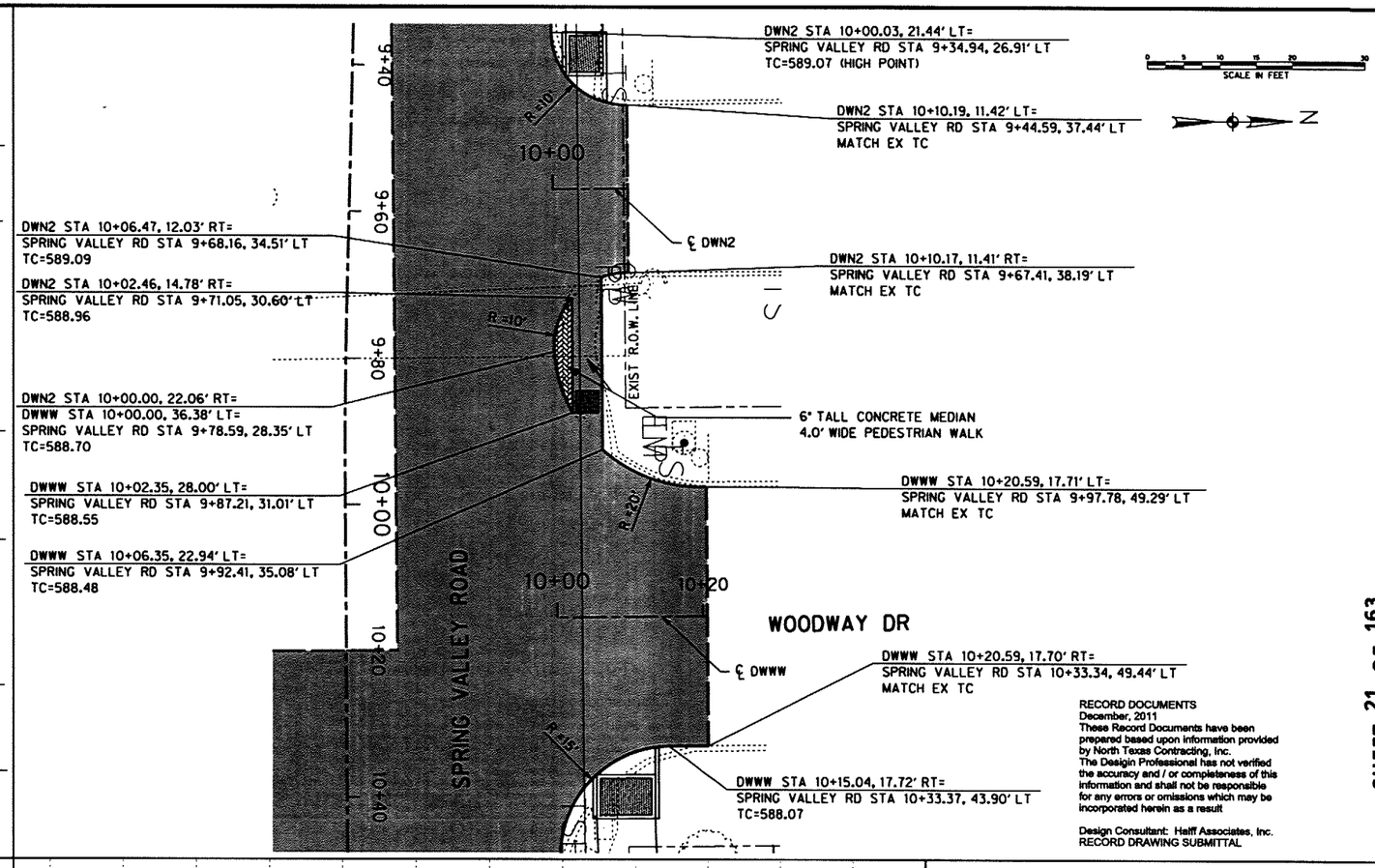
DRIVEWAY PLAN AND PROFILE S5 & S6

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PAVD 03	DP-3

RECORD DRAWINGS





RECORD DOCUMENTS
December, 2011
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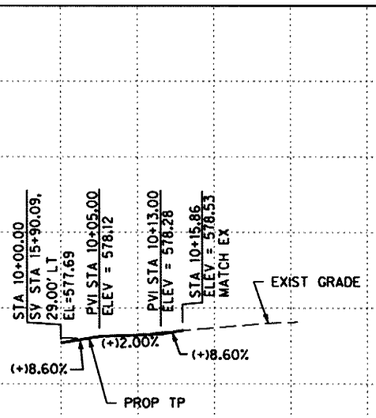
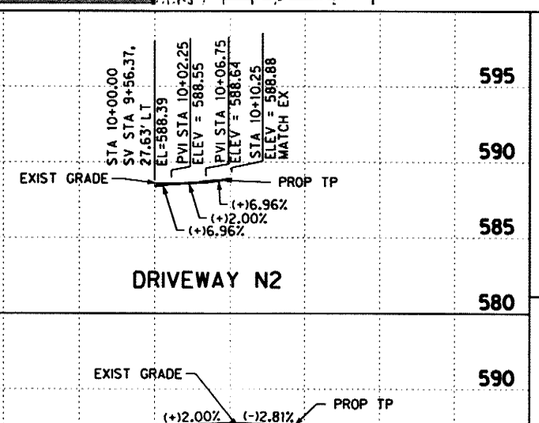
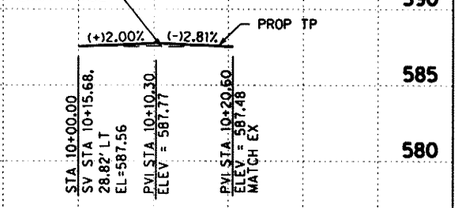
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 21 OF 163







STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011 Date

NO.	REVISION	BY	DATE
1	ADD DRIVEWAY N2 AND WW	MER	3/17/11

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

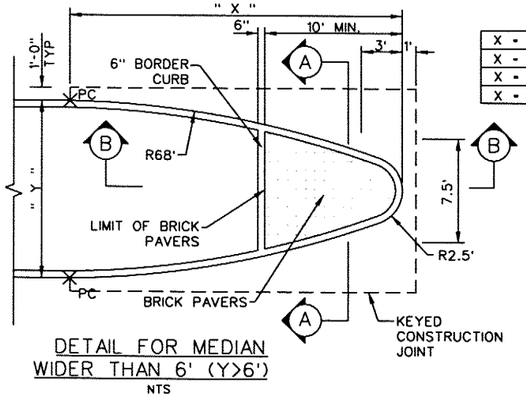
SPRING VALLEY ROAD

DRIVEWAY PLAN AND PROFILE N1, N2, WW

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PAVD 04	DP-4

RECORD DRAWINGS



DETAIL FOR MEDIAN WIDER THAN 6' (Y>6')

NTS

DIMENSIONS OF MEDIAN NOSE

X = 13.90'	Y = 7.0'	X = 26.36'	Y = 14.0'
X = 16.44'	Y = 8.0'	X = 29.89'	Y = 17.0'
X = 18.08'	Y = 9.0'	X = 32.93'	Y = 20.0'
X = 20.42'	Y = 10.0'	X = 36.47'	Y = 24.0'

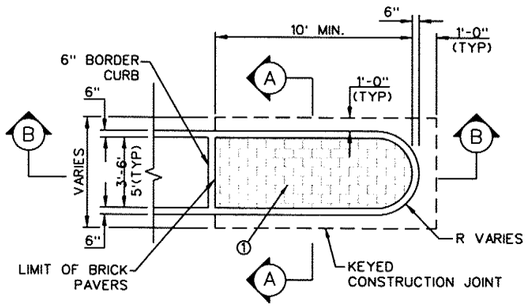
① VEHICULAR BRICK PAVER

② ½" BITUMINOUS EXPANSION JOINT MATERIAL SHALL BE SUFFICIENT TO PREVENT CONTACT BETWEEN WALK & CURB. STOP EXPANSION JOINT AT ¼" BELOW TOP OF CURB AND FILL WITH CONC. GRAY SEALANT.

③ JOINT SAND COMPRISED OF CRUSHED GRANITE SAND CONFORMING TO ASTM C144 AND A DRY MIX POLYMER BASED JOINT SAND STABILIZER. JOINT SAND STABILIZER SHALL BE APPROVED BY THE PUBLIC WORKS DEPARTMENT PRIOR TO INSTALLATION.

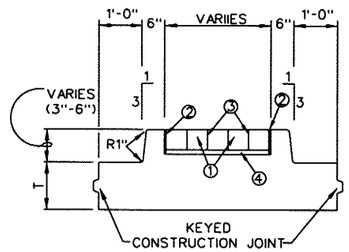
④ BEDDING SAND COMPRISED OF 90% NATURAL OR CRUSHED GRANITE SAND CONFORMING TO ASTM C33 AND 10% PORTLAND CEMENT.

T-PAVEMENT THICKNESS
B-BRICK PAVER THICKNESS



DETAIL FOR MEDIAN 3'-0" TO 6'-0"

NTS

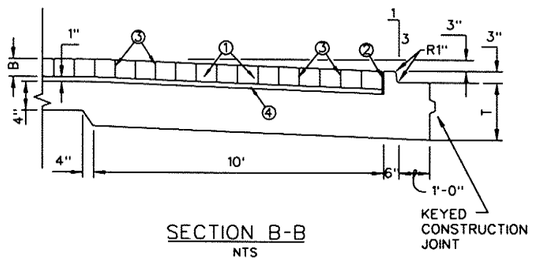


SECTION A-A

NTS

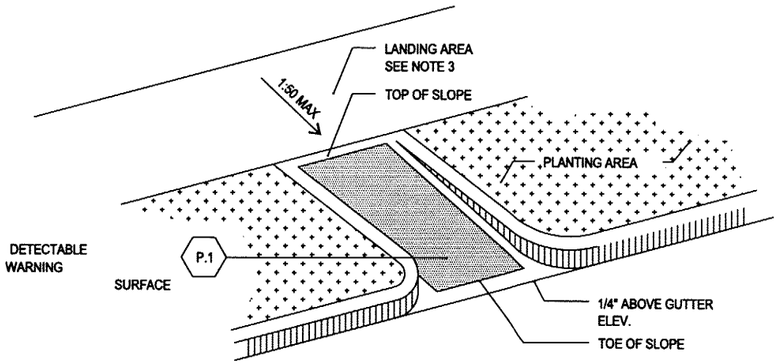
NOTES:

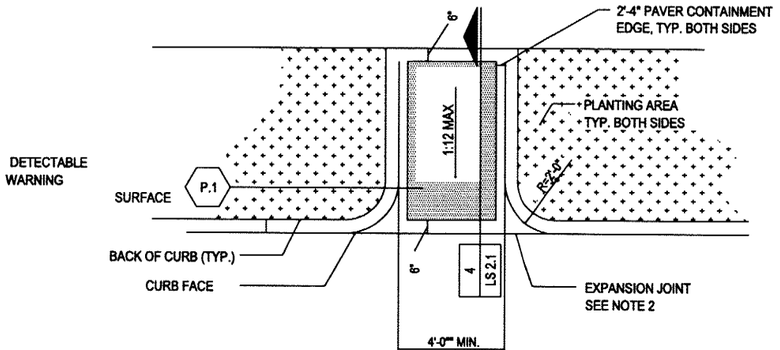
1. BRICK PAVERS SHALL BE VEHICULAR PAVERS CONFORMING TO ASTM C1272, TYPE R APPLICATION AND SHALL BE APPROVED BY PUBLIC WORKS DEPT.
2. BRICK PAVERS SHALL BE WITHOUT FROGS OR CORES IN SURFACE EXPOSED TO VIEW IN THE COMPLETED WORK.
3. MEDIAN PAVERS SHALL EXTEND TO A POINT WHERE MEDIAN IS AT LEAST 6' WIDE. IF MEDIAN IS 6' WIDE, PAVERS SHALL EXTEND 10' FROM THE NOSE.
4. ALL DISTANCES ARE MINIMUM.

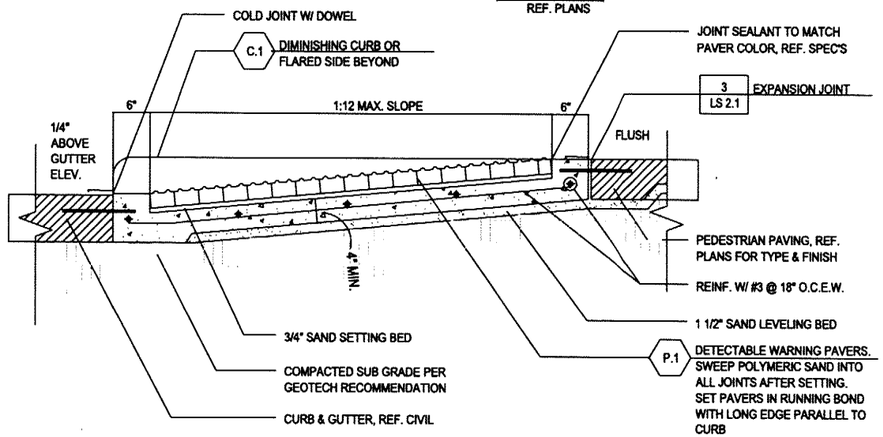


SECTION B-B

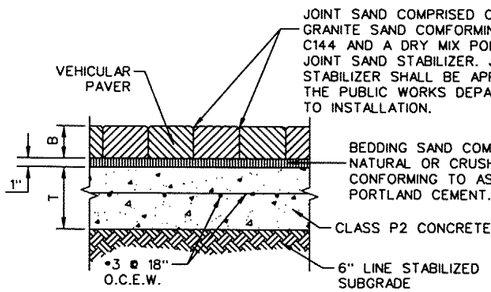
NTS





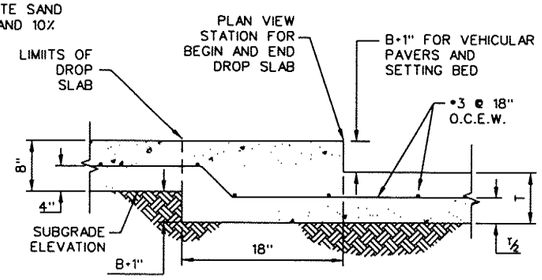


1. REFER TO SECTION 4.7 OF THE ADA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES FOR ADDITIONAL INFORMATION. VERIFY THAT ANY STATE OR LOCAL STANDARDS DO NOT AMMEND FEDERAL GUIDELINES.
2. CURB RAMPS SHALL BE ISOLATED FROM ALL OTHER CONCRETE BY EXPANSION JOINTS.
3. A MIN. 4'-0" X 5'-0" LANDING SHALL BE PROVIDED AT THE TOP OF RAMP. REFERENCE PLANS FOR ACTUAL LAYOUT. LANDING SHALL NOT EXCEED 2% CROSS SLOPE OR 5% LONGITUDINAL SLOPE.
4. THE SIDEWALK THICKENED EDGE SHALL BE CONTINUED THROUGH FLARED SIDES.
5. THE FLARED SIDES SHALL HAVE A MEDIUM BROOM FINISH PARALLEL TO THE CURB.
6. MINIMUM LATERAL CLEARANCE FROM INLETS, POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTACLES SHALL BE 1'-0" FROM THE SCORED OR DETECTABLE WARNING PORTION OF THE CURB RAMP
7. INLETS SHALL BE SO LOCATED THAT GUTTER FLOW DOES NOT FLOW PAST THE CURB RAMP.
8. REFER TO THE MATERIALS SCHEDULE FOR TYPE AND COLOR OF DETECTABLE WARNING SURFACE.



VEHICULAR BRICK INSTALLATION IN VEHICULAR AREAS

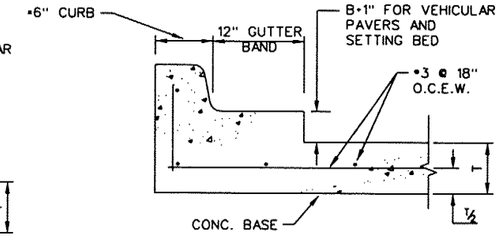
NTS



LONGITUDINAL SECTION AT DROP SLAB

NTS

* NO CURB AT BARRIER FREE RAMP.



SECTION THRU CURB AT DROP SLAB

NOTES:

1. VEHICULAR PAVERS SHALL BE HEAVY PAVING BRICK MEETING ASTM C1272, TYPE R, APPLICATION AND BE APPROVED BY THE PUBLIC WORKS DEPT.
2. PROVIDE BRICK WITHOUT FROGS OR CORES, IN SURFACES EXPOSED TO VIEW IN COMPLETED WORK.

T-PAVEMENT THICKNESS
B-BRICK PAVER THICKNESS

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011
Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

PAVEMENT DETAILS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DTPV01	DT-P1

RECORD DRAWINGS

SHEET 22 OF 163

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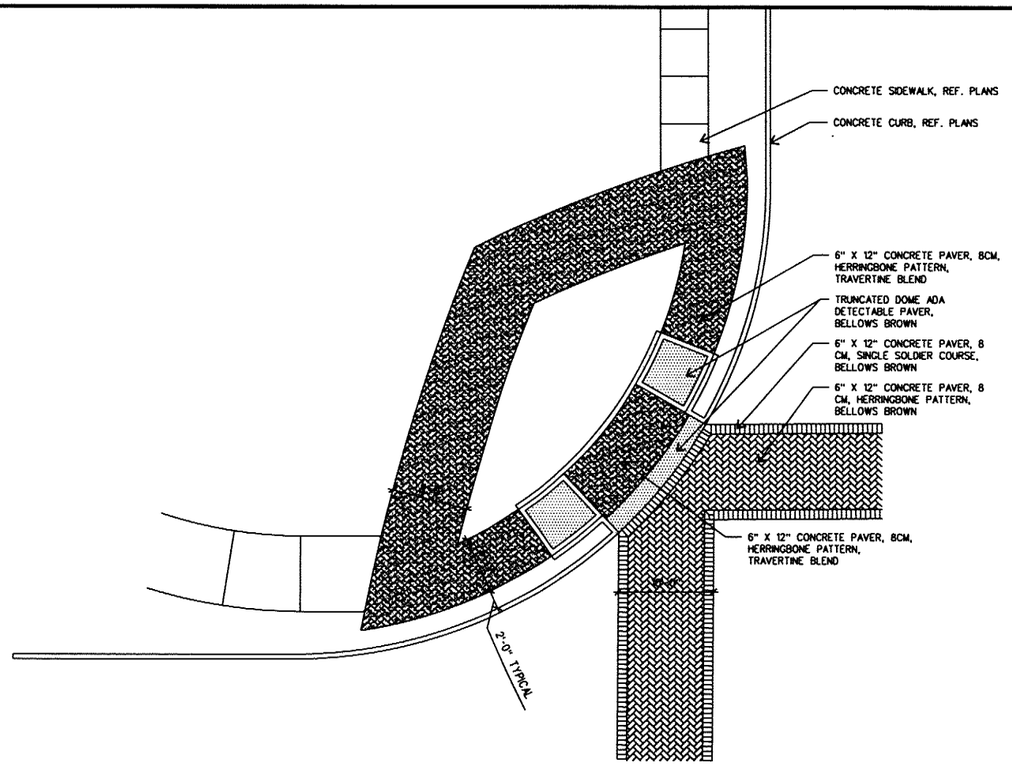
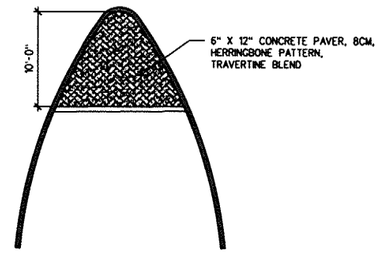
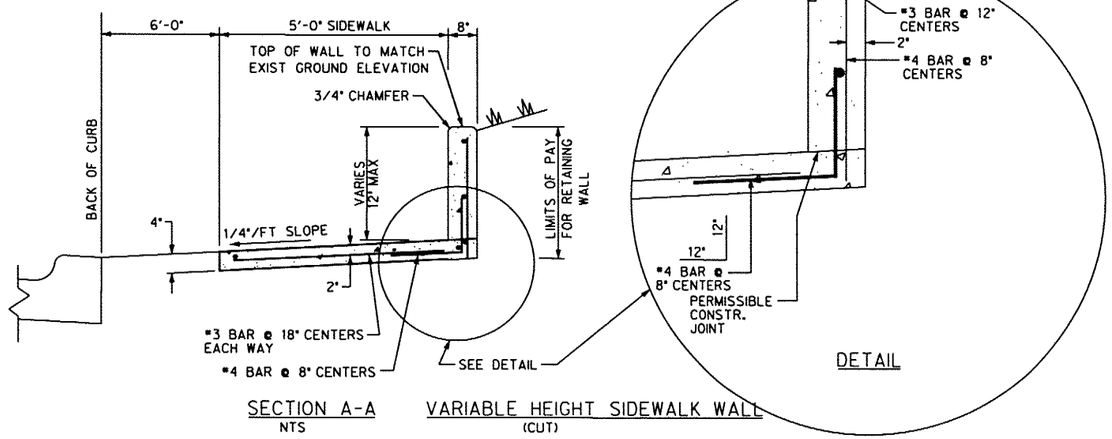




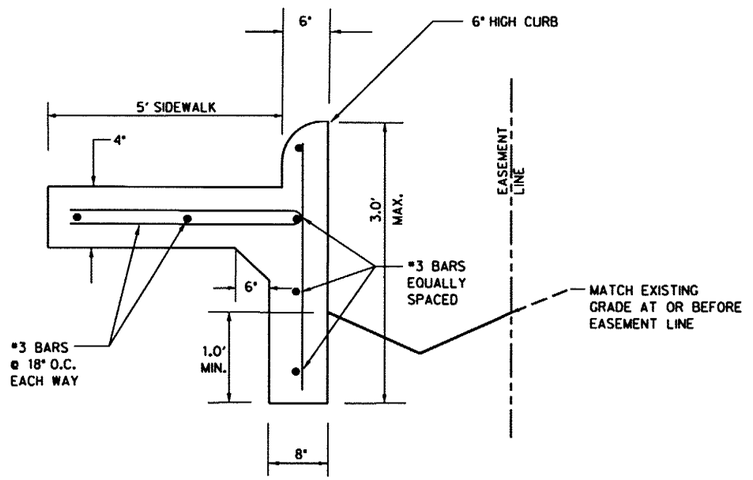


SECTION A-A
NTS

VARIABLE HEIGHT SIDEWALK WALL
(CUT)

NOTES:

1. STEEL REINFORCING IN WALL SHALL BE #3 BARS @ 12" CENTERS HORIZONTALLY AND #4 BARS @ 8" CENTERS VERTICALLY.
2. EXPANSION JOINTS IN WALL SHALL MATCH EXPANSION JOINTS IN THE SIDEWALK.
3. ENDS OF WALL SHALL ALSO BE CHAMFERED.
4. CONCRETE TO HAVE COMPRESSIVE STRENGTH OF 3000 psi at 28 DAYS.



VARIABLE HEIGHT SIDEWALK WALL (FILL)
NTS

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RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/6/2011 Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

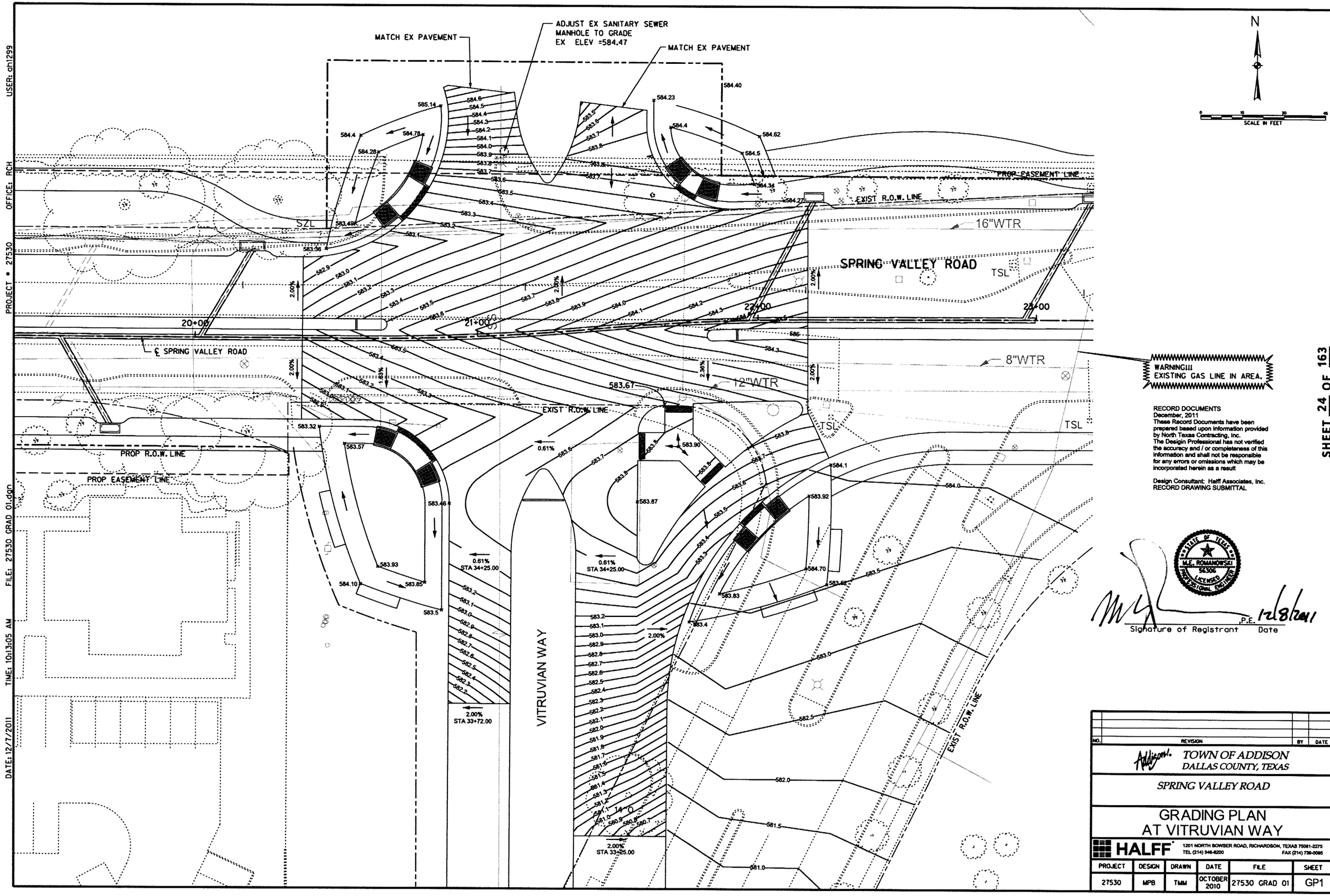
SPRING VALLEY ROAD

PAVEMENT DETAILS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DTPV02	DT-P2

RECORD DRAWINGS



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PROJECT • 27530
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DATE: 12/7/2011

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

GRADING PLAN AT VITRUVIAN WAY

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 GRAD 01	GP1

SHEET 24 OF 163

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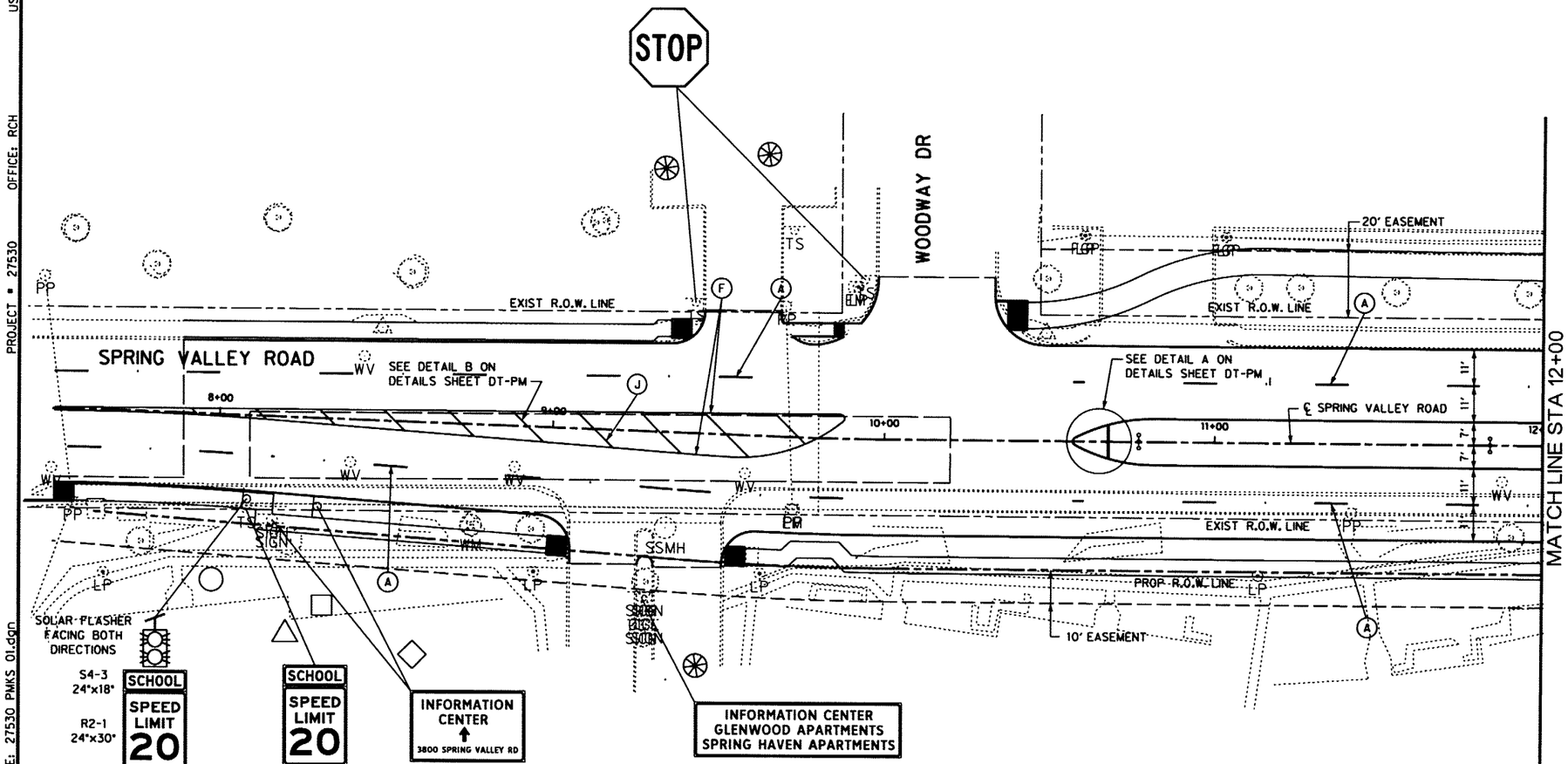

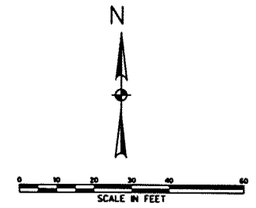

LEGEND

- (A) 4" WHITE BROKEN STRIPE 15' IN LENGTH WITH 30' GAPS SUPPLEMENTED BY TY-II-CR4 BUTTONS CENTERED ON GAP. CLEAR SIDE OF BUTTON SHALL FACE TRAFFIC FLOW
- (B) 4" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (C) 12" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (D) 24" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (E) 4" WHITE DOT REFLECTORIZED PAVEMENT MARKING
- (F) 4" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (H) 8" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (J) 12" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (K) WHITE REFLECTORIZED PAVEMENT MARKING WORD
- (L) WHITE REFLECTORIZED PAVEMENT MARKING ARROW

NOTE:
ALL SIGNING AND STRIPING SHALL COMPLY WITH THE LATEST VERSION OF TMUTCD.

M.E. ROMANOWSKI 56306 LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

P.E. 12/8/2011
Signature of Registrant Date

RECORD DOCUMENTS
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

LEGEND

- PROPOSED SIGN TO BE INSTALLED
- EXISTING SIGN TO REMAIN IN PLACE
- EXISTING SIGN TO BE REMOVED
- EXISTING SIGN TO BE RELOCATED
- EXISTING SIGN RELOCATED

NO.	REVISION	BY	DATE

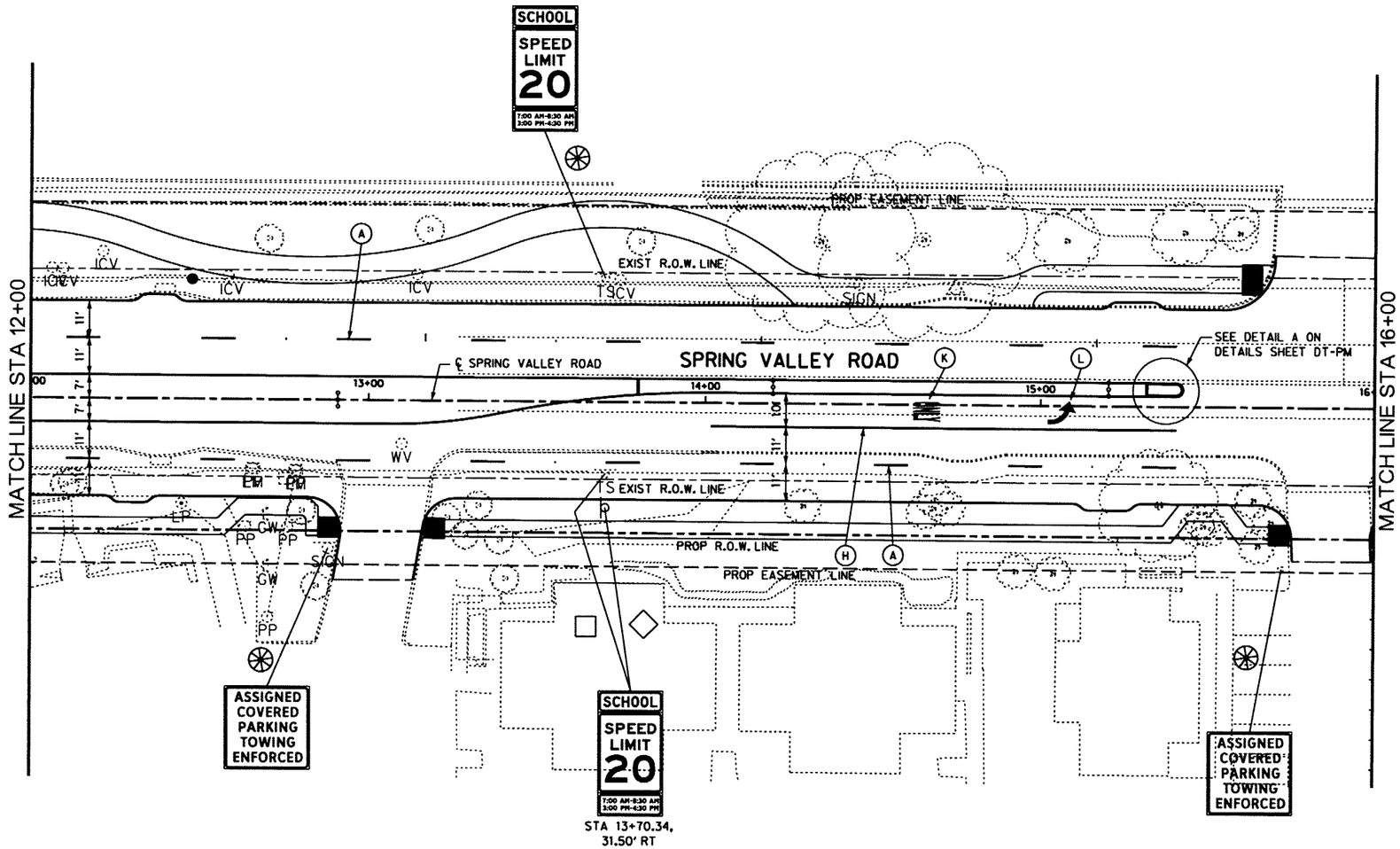
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

STRIPING & SIGNAGE LAYOUT STA 8+87.26 TO 12+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PMKS 01	PM1



N

SCALE IN FEET

LEGEND

- (A) 4" WHITE BROKEN STRIPE 15' IN LENGTH WITH 30' GAPS SUPPLEMENTED BY TY-II-CR4 BUTTONS CENTERED ON GAP. CLEAR SIDE OF BUTTON SHALL FACE TRAFFIC FLOW
- (B) 4" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (C) 12" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (D) 24" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (E) 4" WHITE DOT REFLECTORIZED PAVEMENT MARKING
- (F) 4" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (H) 8" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (J) 12" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (K) WHITE REFLECTORIZED PAVEMENT MARKING WORD
- (L) WHITE REFLECTORIZED PAVEMENT MARKING ARROW

NOTE:
ALL SIGNING AND STRIPING SHALL COMPLY WITH THE LATEST VERSION OF TMUTCD.

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL .

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/8/2011

LEGEND

- PROPOSED SIGN TO BE INSTALLED
- EXISTING SIGN TO REMAIN IN PLACE
- EXISTING SIGN TO BE REMOVED
- EXISTING SIGN TO BE RELOCATED
- EXISTING SIGN RELOCATED

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

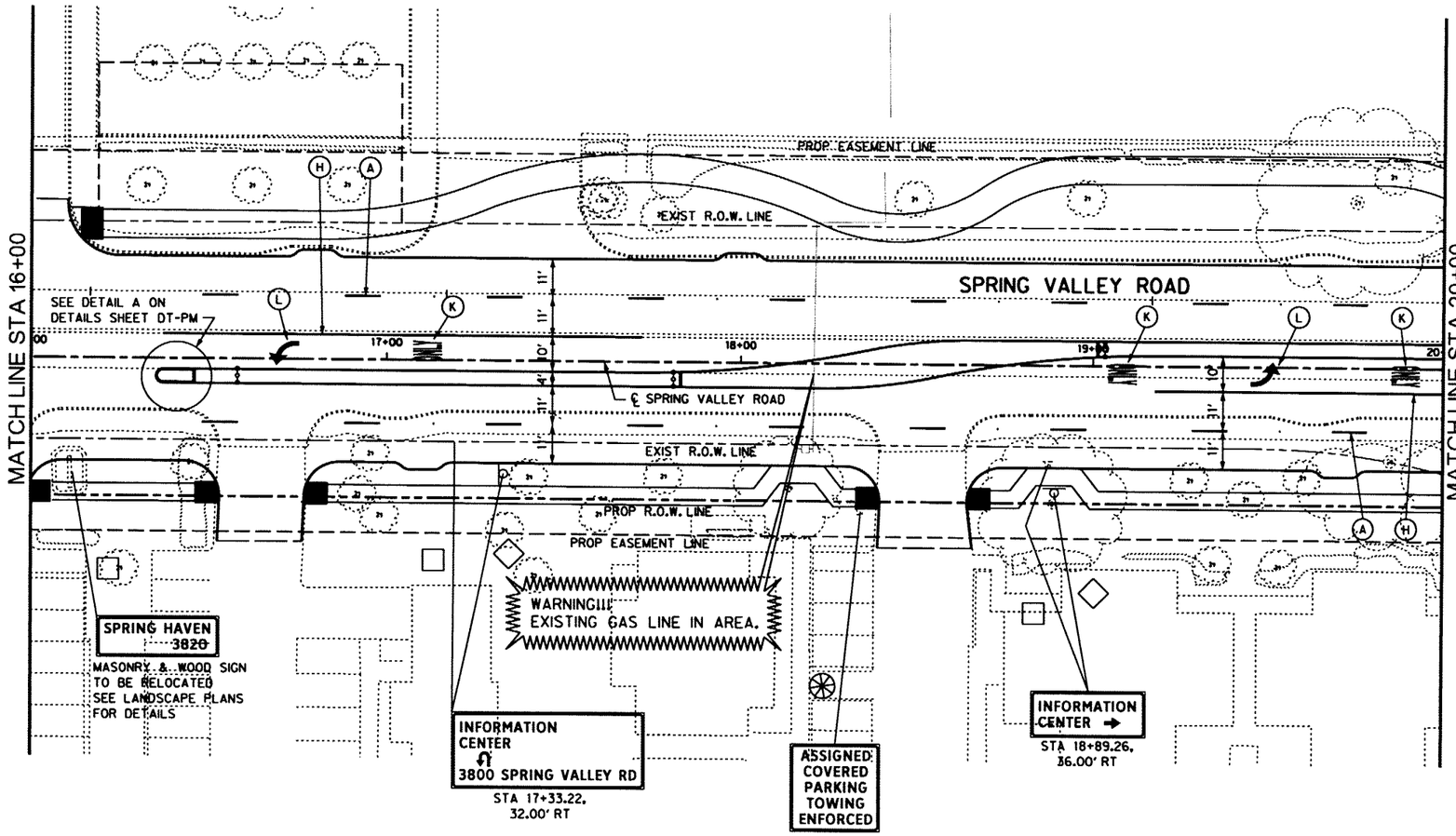
STRIPING & SIGNAGE LAYOUT STA 12+00 TO 16+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PMKS 02	PM2

SHEET 26 OF 163

RECORD DRAWINGS



N

0 10 20 30 40 60
SCALE IN FEET

LEGEND

- (A) 4" WHITE BROKEN STRIPE 15' IN LENGTH WITH 30' GAPS SUPPLEMENTED BY TY-II-CR4 BUTTONS CENTERED ON GAP. CLEAR SIDE OF BUTTON SHALL FACE TRAFFIC FLOW
- (B) 4" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (C) 12" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (D) 24" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (E) 4" WHITE DOT REFLECTORIZED PAVEMENT MARKING
- (F) 4" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (H) 8" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (J) 12" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (K) WHITE REFLECTORIZED PAVEMENT MARKING WORD
- (L) WHITE REFLECTORIZED PAVEMENT MARKING ARROW

NOTE:
ALL SIGNING AND STRIPING SHALL COMPLY WITH THE LATEST VERSION OF TMUTCD.

RECORD DOCUMENTS
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc.
The Design Professional has not verified the accuracy and / or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result

Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.F. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant Date 12/8/2011 P.E.

LEGEND

- PROPOSED SIGN TO BE INSTALLED
- EXISTING SIGN TO REMAIN IN PLACE
- EXISTING SIGN TO BE REMOVED
- EXISTING SIGN TO BE RELOCATED
- EXISTING SIGN RELOCATED

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

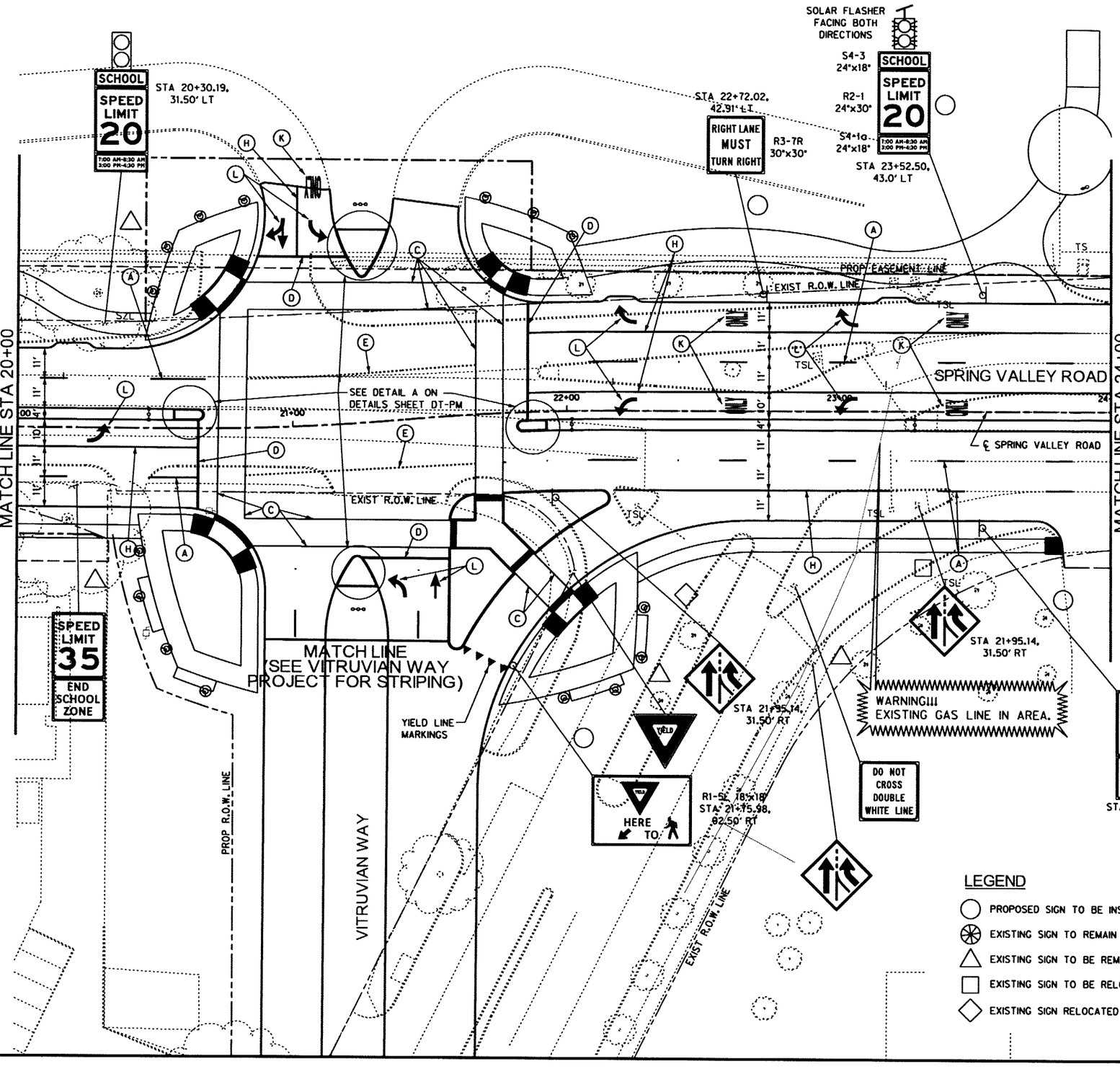
STRIPING & SIGNAGE LAYOUT STA 16+00 TO 20+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PMKS 03	PM3

SHEET 27 OF 163

RECORD DRAWINGS



LEGEND

- (A) 4" WHITE BROKEN STRIPE 15' IN LENGTH WITH 30' GAPS SUPPLEMENTED BY TY-II-CR4 BUTTONS CENTERED ON GAP. CLEAR SIDE OF BUTTON SHALL FACE TRAFFIC FLOW
- (B) 4" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (C) 12" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (D) 24" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (E) 4" WHITE DOT REFLECTORIZED PAVEMENT MARKING
- (F) 4" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (H) 8" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (J) 12" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (K) WHITE REFLECTORIZED PAVEMENT MARKING WORD
- (L) WHITE REFLECTORIZED PAVEMENT MARKING ARROW

NOTE:
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011
Date

LEGEND

- PROPOSED SIGN TO BE INSTALLED
- EXISTING SIGN TO REMAIN IN PLACE
- EXISTING SIGN TO BE REMOVED
- EXISTING SIGN TO BE RELOCATED
- EXISTING SIGN RELOCATED

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

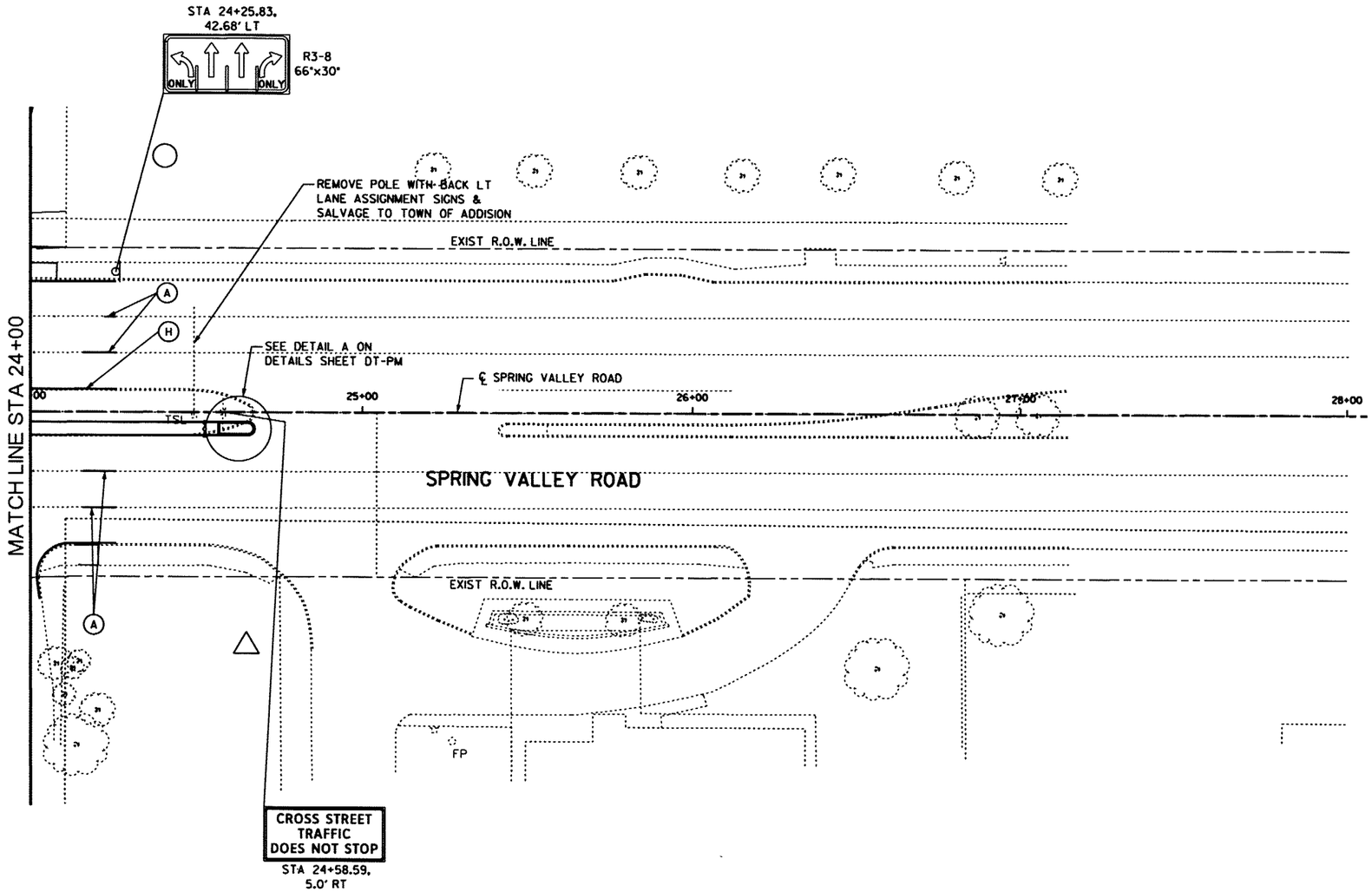
STRIPING & SIGNAGE LAYOUT STA 20+00 TO 24+00

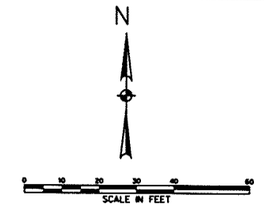
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PMKS 04	PM4

RECORD DRAWINGS

SHEET 28 OF 163





LEGEND

- (A) 4" WHITE BROKEN STRIPE 15' IN LENGTH WITH 30' GAPS SUPPLEMENTED BY TY-II-CR4 BUTTONS CENTERED ON GAP. CLEAR SIDE OF BUTTON SHALL FACE TRAFFIC FLOW
- (B) 4" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (C) 12" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (D) 24" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (E) 4" WHITE DOT REFLECTORIZED PAVEMENT MARKING
- (F) 4" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (H) 8" WHITE SOLID REFLECTORIZED PAVEMENT MARKING
- (J) 12" YELLOW SOLID REFLECTORIZED PAVEMENT MARKING
- (K) WHITE REFLECTORIZED PAVEMENT MARKING WORD
- (L) WHITE REFLECTORIZED PAVEMENT MARKING ARROW

NOTE:
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RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.F. ROMANOWSKI
54306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/6/11

LEGEND

- PROPOSED SIGN TO BE INSTALLED
- EXISTING SIGN TO REMAIN IN PLACE
- EXISTING SIGN TO BE REMOVED
- EXISTING SIGN TO BE RELOCATED
- EXISTING SIGN RELOCATED

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

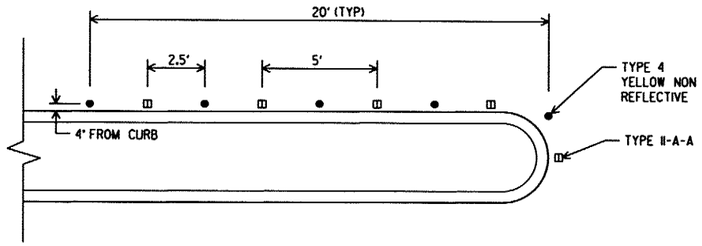
SPRING VALLEY ROAD

STRIPING & SIGNAGE LAYOUT STA 24+00 TO 26+11.52

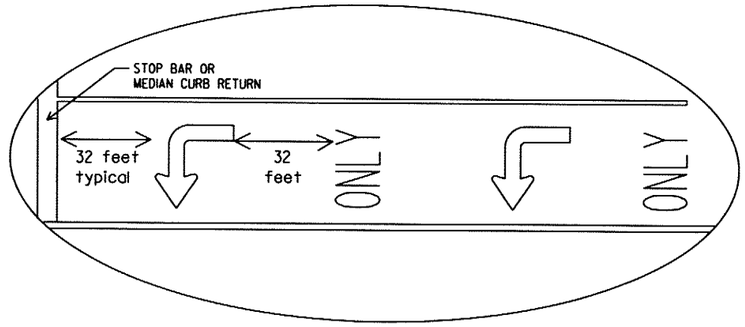
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 PMKS 05	PM5

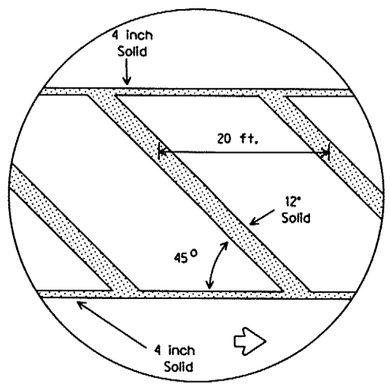
RECORD DRAWINGS



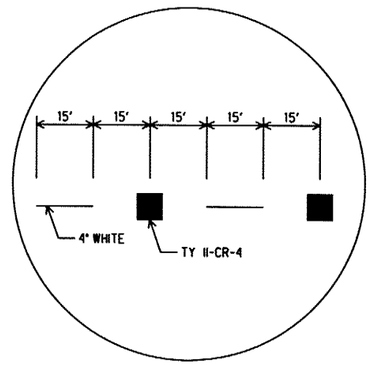
DETAIL "A"
N.T.S.



DETAIL "C"
TYPICAL FOR ALL PROPOSED
TURN LANES
N.T.S.



DETAIL "B"
TYPICAL FOR ALL PROPOSED
LANE BLOCK STRIPING
N.T.S.



DETAIL "D"
N.T.S.

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

PAVEMENT MARKING DETAILS

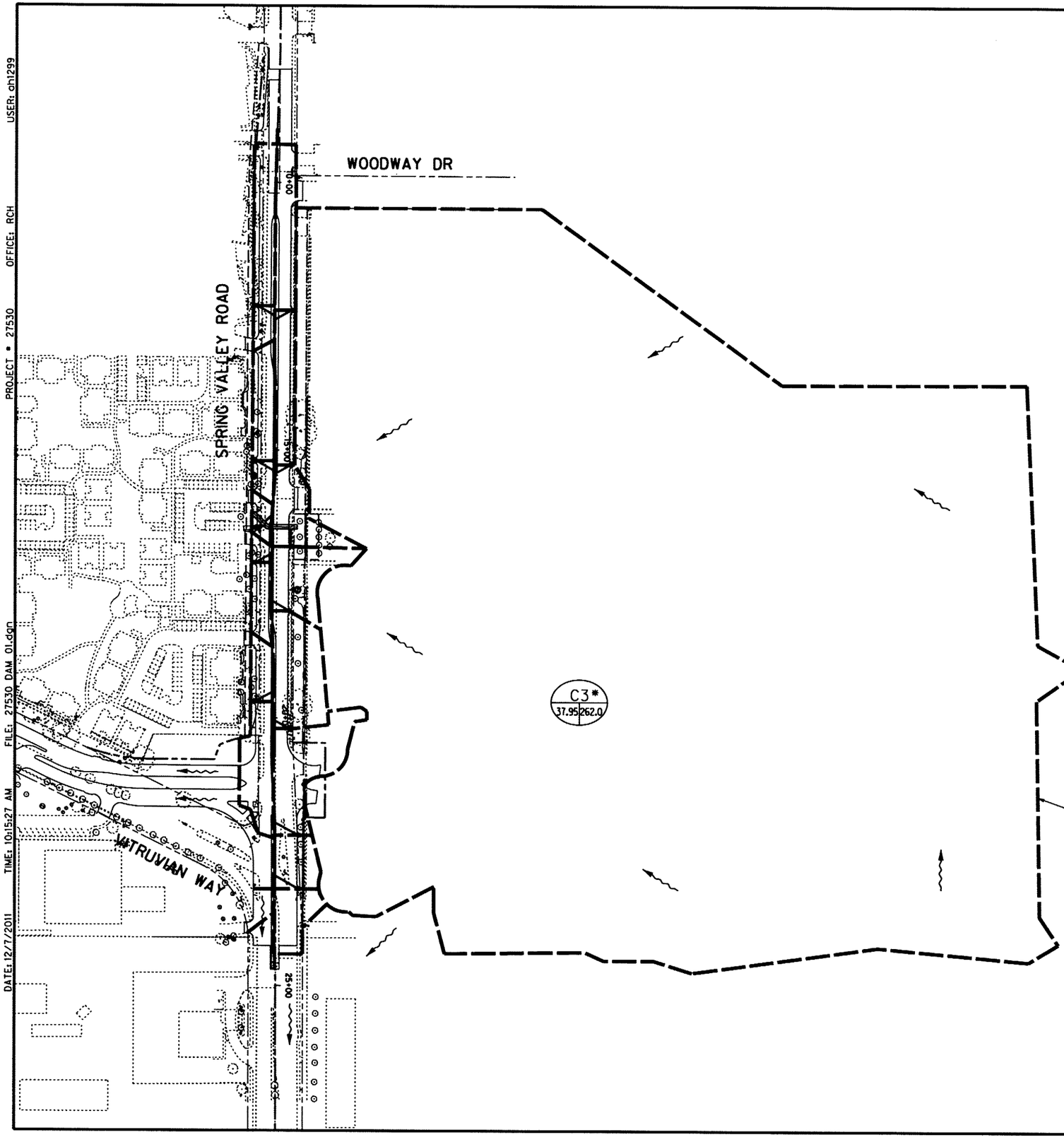
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DTSN 01	DT-PM

SHEET 30 OF 163

RECORD DRAWINGS

USER: ahl299
PROJECT # 27530 OFFICE: RCH
DATE: 12/7/2011 TIME: 10:15:03 AM FILE: 27530 DTSN 01.dgn



N

0 50 100 150 200 300
SCALE IN FEET

LEGEND

- DRAINAGE DIVIDE LINE
- RIGHT-OF-WAY LINE
- DIRECTION OF FLOW

DRAINAGE AREA
XXX
XX.X | XX.X
ACRES, "A"
Q= C x I x A
REFER TO HYDRAULIC CALCULATIONS SHEET

SHEET 31 OF 163

* C3 IS THE TOTAL DRAINAGE AREA ROUTED TO THE EXISTING JUNCTION BOX AT STA 16+43.16, 49.43' LT

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
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STATE OF TEXAS
M.E. ROMANOWSKI
96306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/7/2011 Date

RECORD DRAWINGS

NO.	REVISION	BY	DATE

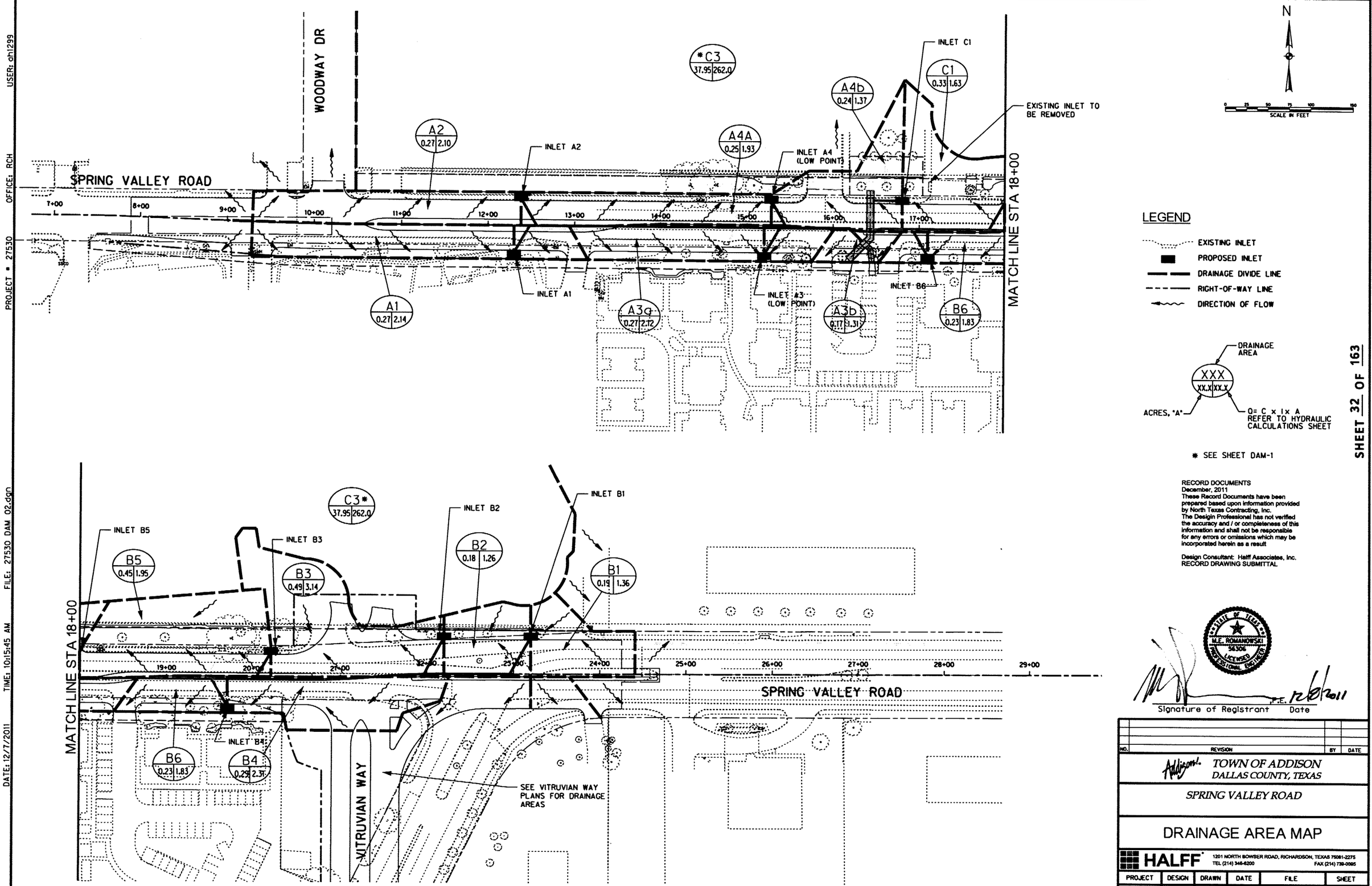
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

DRAINAGE AREA MAP OVERALL

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DAM 01	DAM-1



N

0 25 50 75 100 150
SCALE IN FEET

LEGEND

- EXISTING INLET
- PROPOSED INLET
- DRAINAGE DIVIDE LINE
- RIGHT-OF-WAY LINE
- DIRECTION OF FLOW

DRAINAGE AREA
XXX
XX.X | XX.X
ACRES, "A"
Q= C x I x A
REFER TO HYDRAULIC CALCULATIONS SHEET

* SEE SHEET DAM-1

SHEET 32 OF 163

RECORD DRAWINGS

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
58306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/6/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

DRAINAGE AREA MAP

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DAM 02	DAM-2

RUNOFF CALCULATIONS

DRAINAGE AREAS		LANDUSE			C x A	Tc	i_{100}	Q_{100}
		PAV	COMM.	GRASS				
ID	AREA (AC)	0.9 (AC)	C = 0.85 (AC)	C=0.3	(AC)	(MIN)	(IN/HR)	(CFS)
A1	0.27	0.27	0.00	0.00	0.25	10	8.74	2.14
A2	0.27	0.27	0.00	0.00	0.24	10	8.74	2.10
A3a	0.27	0.27	0.00	0.00	0.24	10	8.74	2.12
A3b	0.17	0.17	0.00	0.00	0.15	10	8.74	1.31
A4a	0.25	0.25	0.00	0.00	0.22	10	8.74	1.93
A4b	0.24	0.14	0.00	0.10	0.16	10	8.74	1.37
B1	0.19	0.16	0.00	0.03	0.16	10	8.74	1.36
B2	0.18	0.15	0.00	0.04	0.14	10	8.74	1.26
B3	0.49	0.36	0.00	0.13	0.36	10	8.74	3.14
B4	0.29	0.29	0.00	0.00	0.26	10	8.74	2.31
B5	0.45	0.19	0.00	0.18	0.22	10	8.74	1.95
B6	0.23	0.23	0.00	0.00	0.21	10	8.74	1.83
C1	0.33	0.15	0.00	0.18	0.19	10	8.74	1.63
C3	37.95	30.99	0.00	6.96	29.98	10	8.74	262.02

INLET CALCULATIONS

INLET NUMBER	A	C	Tc (min)	i_{100} (in/hr)	SUB-AREA Q100	CARRYOVER FLOW FROM UPSTREAM INLET q	TOTAL FLOW	INLET TYPE	SPRING VALLEY ROAD CENTERLINE STATION AT INLET	STRAIGHT CROWN TYPE CROSS SLOPE	RECIPROCAL OF CROWN SLOPE	Z/n	GUTTER SLOPE AT INLET	FLOW DEPTH Y_o	SPREAD Sp	CAPACITY PER FOOT OF INLET Q/Lo	LENGTH OF INLET REQ'D Lo	INLET LENGTH L	L/L_o	a	a/Y_o	Q/Q_o	FLOW INTER-CEPTED	CARRYOVER FLOW TO DOWNSTREAM INLET	COMMENTS
	(ACRES)		(MIN)	(IN/HR)	(CFS)	(CFS)	(CFS)		(STA)	(%)	Z		(%)	(FT)	(FT)	(CFS/FT)	(FT)	(FT)		(INCH)			(CFS)	(CFS)	
A1	0.27	0.90	10	8.74	2.14	0.00	2.14	6' Recessed Curb Inlet on Grade	12+30.00	2.00%	50	3125	2.21%	0.17	8.25	0.47	4.55	6	1.32	4	2.02	100%	2.14	0.00	
A2	0.27	0.90	10	8.74	2.10	0.00	2.10	6' Recessed Curb Inlet on Grade	12+38.00	2.00%	50	3125	2.47%	0.16	8.02	0.47	4.50	6	1.33	4	2.08	100%	2.10	0.00	
A3	0.44	0.90	10	8.74	3.43	0.00	3.43	10' Recessed Curb Inlet on Sag	15+20.00	2.00%	50	3125	1.49%	0.21	10.60	0.51	6.69	10	1.49	4	1.57	100%	3.43	0.00	Low Point
A4	0.49	0.78	10	8.74	3.31	0.00	3.31	10' Recessed Curb Inlet on Sag	15+28.00	2.00%	50	3125	1.49%	0.21	10.45	0.87	3.81	10	2.62	4	1.59	100%	3.31	0.00	Low Point
B1	0.19	0.81	10	8.74	1.36	0.00	1.36	6' Recessed Curb Inlet on Grade	23+20.00	2.00%	50	3125	0.60%	0.18	8.87	0.48	2.82	6	2.13	3	1.41	100%	1.36	0.00	
B2	0.18	0.78	10	8.74	1.26	0.00	1.26	6' Recessed Curb Inlet on Grade	22+20.00	2.00%	50	3125	0.60%	0.17	8.63	0.48	2.64	6	2.27	4	1.93	100%	1.26	0.00	
B3	0.49	0.74	10	8.74	3.14	0.00	3.14	8' Recessed Curb Inlet on Grade	20+20.00	2.00%	50	3125	1.69%	0.20	10.00	0.50	6.24	8	1.28	4	1.67	100%	3.14	0.00	
B4	0.29	0.90	10	8.74	2.31	0.00	2.31	6' Recessed Curb Inlet on Grade	19+70.00	2.00%	50	3125	1.93%	0.17	8.70	0.82	2.83	6	2.12	4	1.91	100%	2.31	0.00	
B5	0.45	0.50	10	8.74	1.95	0.00	1.95	6' Recessed Curb Inlet on Grade	18+00.00	2.00%	50	3125	0.77%	0.19	9.71	0.85	2.31	6	2.60	5	2.15	100%	1.95	0.00	
B6	0.23	0.90	10	8.74	1.83	0.00	1.83	6' Recessed Curb Inlet on Grade	17+10.00	2.00%	50	3125	0.77%	0.19	9.46	0.84	2.18	6	2.76	6	2.64	100%	1.83	0.00	
C1	0.33	0.57	10	8.74	1.63	0.00	1.63	6' Recessed Curb Inlet on Grade	16+80.00	2.00%	50	3125	0.77%	0.18	9.08	0.49	3.36	6	1.79	4	1.84	100%	1.63	0.00	

Signature of Registrant Date ,P.E. 12/8/2011

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

HYDRAULIC COMPUTATIONS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DAC 01	DAC-1

LINE A

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI	MANN. COEFF.	FULL PIPE FRICT. GRAD.	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			13+91.10															576.18															
1	2	8.00	13+91.10	13+83.10	A1	0.28	0.28	0.90	0.25	0.25	10	0.00	10.00	100	8.74	2.20	18	576.18	576.05	577.68	577.55	0.0162	1.767	1.25	0.11	0.375	0.013	0.00044	PARTIAL	577.49	577.48	0.02	0.35	0.06
2	3	282.00	13+83.10	11+01.10	A2	0.27	0.55	0.90	0.24	0.50		0.11	10.11	100	8.72	4.32	18	576.05	571.76	577.55	573.26	0.0152	1.767	2.45	1.92	0.375	0.013	0.00169	FULL	577.40	576.92	0.09	0.35	0.06
3	4	8.00	11+01.10	10+93.10	A3	0.43	0.98	0.90	0.39	0.88		1.92	12.03	100	8.72	7.69	24	571.76	571.70	573.76	573.70	0.0075	3.142	2.45	0.05	0.500	0.013	0.00116	FULL	576.86	576.85	0.09	0.35	0.06
4	5	93.10	10+93.10	10+00.00	A4	0.49	1.47	0.90	0.44	1.32		0.05	12.08	100	8.72	11.54	24	571.70	570.96	573.70	572.96	0.0079	3.142	3.68	0.42	0.500	0.013	0.0026	FULL	576.67	576.43	0.21		

LAT A1

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+36.37															578.97															
1	2	36.37	0+36.37	0+00.00	A1	0.27	0.27	0.90	0.25	0.25	10	0.00	10.00	100	8.74	2.14	18	578.97	578.18	580.47	577.68	0.0767	1.767	1.22	0.50	0.375	0.013	0.00042	PARTIAL	577.25	577.23	0.02		

LAT A2

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+36.37															578.79															
1	2	36.37	0+36.37	0+00.00	A2	0.27	0.27	0.90	0.24	0.24	10	0.00	10.00	100	8.74	2.10	18	578.79	576.05	580.29	577.55	0.0753	1.767	1.19	0.51	0.375	0.013	0.00040	PARTIAL	577.16	577.15	0.02		

LAT A3

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+36.37															573.29															
1	2	36.37	0+36.37	0+00.00	A3	0.44	0.44	0.90	0.39	0.39	10	0.00	10.00	100	8.74	3.43	18	573.29	572.01	574.79	573.51	0.0352	1.767	1.95	0.31	0.375	0.013	0.00107	FULL	576.65	576.61	0.06		

LAT A4

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+36.37															573.29															
1	2	36.37	0+36.37	0+00.00	A4	0.49	0.49	0.78	0.38	0.38	10		10.00	100	8.74	3.31	18	573.29	571.95	574.79	573.45	0.0368	1.767	1.88	0.32	0.375	0.013	0.00099	FULL	576.57	576.54	0.05		

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/8/11
Signature of Registrant Date

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

HYDRAULIC COMPUTATIONS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DAC 02	DAC-2

LINE B

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI	MANN. COEFF.	FULL PIPE FRICT. GRAD.	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			16+48.28															579.61					0.00								579.32	0.00		0.01
1	2	98.86	16+48.28	15+49.42	B1	0.19	0.19	0.81	0.16	0.16	10	0.00	10.00	100	8.74	1.36	18	579.61	578.29	581.11	579.79	0.0133	1.767	0.77	2.14	0.375	0.013	0.00017	PARTIAL	579.31	579.29	0.01	0.35	0.24
2	3	194.89	15+49.42	13+54.53	B2	0.18	0.38	0.78	0.14	0.30		2.14	12.14	100	8.22	2.47	18	578.29	575.69	579.79	577.19	0.0133	1.767	1.40	2.32	0.375	0.013	0.00055	FULL	579.05	578.94	0.03	0.35	0.36
3	4	50.00	13+54.53	13+04.53	B3	0.49	0.86	0.74	0.36	0.66		2.32	14.46	100	7.85	5.04	18	575.69	575.03	577.19	576.53	0.0133	1.767	2.86	0.29	0.375	0.013	0.00230	FULL	578.59	578.47	0.13	0.35	0.46
4	5	170.00	13+04.53	11+34.53	B4	0.29	1.16	0.90	0.26	0.92		0.29	14.75	100	7.58	7.00	18	575.03	572.76	576.53	574.26	0.0133	1.767	3.97	0.71	0.375	0.013	0.00444	FULL	578.01	577.25	0.25	0.35	-0.09
5	6	90.00	11+34.53	10+44.53	B5	0.45	1.61	0.50	0.22	1.15		0.71	15.46	100	7.47	8.57	18	572.76	571.55	574.26	573.05	0.0133	1.767	4.86	0.31	0.375	0.013	0.00666	FULL	577.34	576.74	0.37	0.27	-0.10
6	7	44.53	10+44.53	10+00.00	B6	0.23	1.84	0.90	0.21	1.36		0.31	15.77	100	7.43	10.08	18	571.55	570.96	573.05	572.46	0.0133	1.767	5.72	0.13	0.375	0.013	0.00920	FULL	576.84	576.43	0.51		

LAT B1

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+48.89															580.59															
1	2	48.89	0+48.89	0+00.00	B1	0.19	0.19	0.81	0.16	0.16	10	0.00	10.00	100	8.74	1.36	18	580.59	579.61	582.09	581.11	0.0200	1.767	0.77	1.06	0.375	0.013	0.00017	PARTIAL	579.32	579.31	0.01		

LAT B2

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+48.70															579.99															
1	2	48.70	0+48.70	0+00.00	B2	0.18	0.18	0.78	0.14	0.14	10	0.00	10.00	100	8.74	1.26	18	579.99	578.29	581.49	579.79	0.0348	1.767	0.72	1.13	0.375	0.013	0.00014	PARTIAL	579.08	579.05	0.01		

LAT B3

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+36.37															578.52															
1	2	36.37	0+36.37	0+00.00	B3	0.49	0.49	0.74	0.36	0.36	10	0.00	10.00	100	8.74	3.14	18	578.52	575.89	580.02	577.19	0.0776	1.767	1.78	0.34	0.375	0.013	0.00089	FULL	578.62	578.59	0.05		

LAT B4

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_j	h_j
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+36.37															577.56															
1	2	36.37	0+36.37	0+00.00	B4	0.29	0.29	0.90	0.26	0.26	10	0.00	10.00	100	8.74	2.31	18	577.56	575.03	579.06	576.53	0.0697	1.767	1.31	0.46	0.375	0.013	0.00049	FULL	578.03	578.01	0.03		

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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/6/2011
Signature of Registrant Date

SHEET 35 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

HYDRAULIC COMPUTATIONS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DAC 03	DAC-3

LAT B5

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_i	h_i
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+36.37														575.31																
1	2	36.37	0+36.37	0+00.00	B5	0.45	0.45	0.50	0.22	0.22	10	0.00	10.00	100	8.74	1.95	18	575.31	572.76	576.81	574.26	0.0703	1.767	1.11	0.55	0.375	0.013	0.00035	FULL	577.35	577.34	0.02		

LAT B6

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_i	h_i
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+36.37														574.82																
1	2	36.37	0+36.37	0+00.00	B6	0.23	0.23	0.90	0.21	0.21	10	0.00	10.00	100	8.74	1.83	18	574.82	571.55	576.12	573.05	0.0642	1.767	1.04	0.59	0.375	0.013	0.00030	FULL	576.85	576.84	0.02		

LINE C

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE/BOX		PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADIUS	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"	SPAN	HEIGHT	US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_i	h_i
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN	IN					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			10+83.05															571.87																
1	2	44.44	10+83.05	10+38.61	C1, C2 & C3	38.28	38.28	0.79	30.17	30.17	10	0.00	10.00	100	8.74	263.67	84	48	571.87	570.96	575.87	574.96	0.0205	28.000	9.44	0.08	1.273	0.013	0.00492	FULL	577.35	577.13	1.38	0.35	0.70
2	3	22.84	10+38.61	10+15.77	A & B	3.30	41.58	0.81	2.68	32.84	5.77	0.08	15.85	100	7.42	243.71	84	48	570.96	570.49	574.96	574.49	0.0206	28.000	8.73	0.04	1.273	0.013	0.00420	FULL	576.43	576.33	1.18	0.10	1.10
3	4	15.77	10+15.77	10+00.00			41.58			32.84		0.04	15.89	100	7.52	246.99	84	48	570.49	570.17	574.49	574.17	0.0203	28.000	8.84	0.03	1.273	0.013	0.00432	FULL	575.24	575.17	1.21		

LAT C1

INLET OR NODE		DISTANCE			US DRAINAGE AREA			RUNOFF COEFF	INCR	TOTAL	US TIME OF CONCENTR.			DESIGN FREQ.	INTENS.	DISCH.	SIZE OF PIPE	PIPE FLOWLINE		PIPE SOFFIT		PIPE SLOPE	AREA FULL	VEL. FULL	TIME IN PIPE	FULL PIPE HYD. RADI US	MANN. COEFF.	FULL PIPE FRICT. GRAD. SLOPE	FLOW IN PIPE	HYDRAULIC GRADIENT ELEVATION		FULL PIPE VELOC. HEAD	DS NODE STRUCTURAL LOSS	
					INCRE. AREA		TOT.																												
		L	US	DS	DA	AREA	AREA	"C"	"CA"	"CA"	INLET	PIPE	TOTAL		"I100"	"Q100"		US	DS	US	DS	S_{PIPE}	A_{FULL}	V_{FULL}	T_{FULL}	RH_{FULL}	n	S_{FULL}		US	DS	$V_{FULL}^2/2g$	K_i	h_i
US	DS	FEET	STA	STA	ID#	AC.	AC.				MIN	MIN	MIN	YEARS	IN/HR	CFS	IN.					FT./FT.	SF	FPS	MIN	FT		FT/FT				FT.	CON.	FT.
	1			0+30.30														574.39																
1	2	30.30	0+30.30	0+00.00	C1	0.33	0.33	0.57	0.19	0.19	10	0.00	10.00	100	8.74	1.83	18	574.39	572.92	575.89	574.42	0.0484	1.767	0.93	0.54	0.375	0.013	0.00024	FULL	577.35	577.35	0.01		

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STATE OF TEXAS
M.E. ROMANOWSKI
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Signature of Registrant P.E. 12/5/2011 Date

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SPRING VALLEY ROAD

HYDRAULIC COMPUTATIONS

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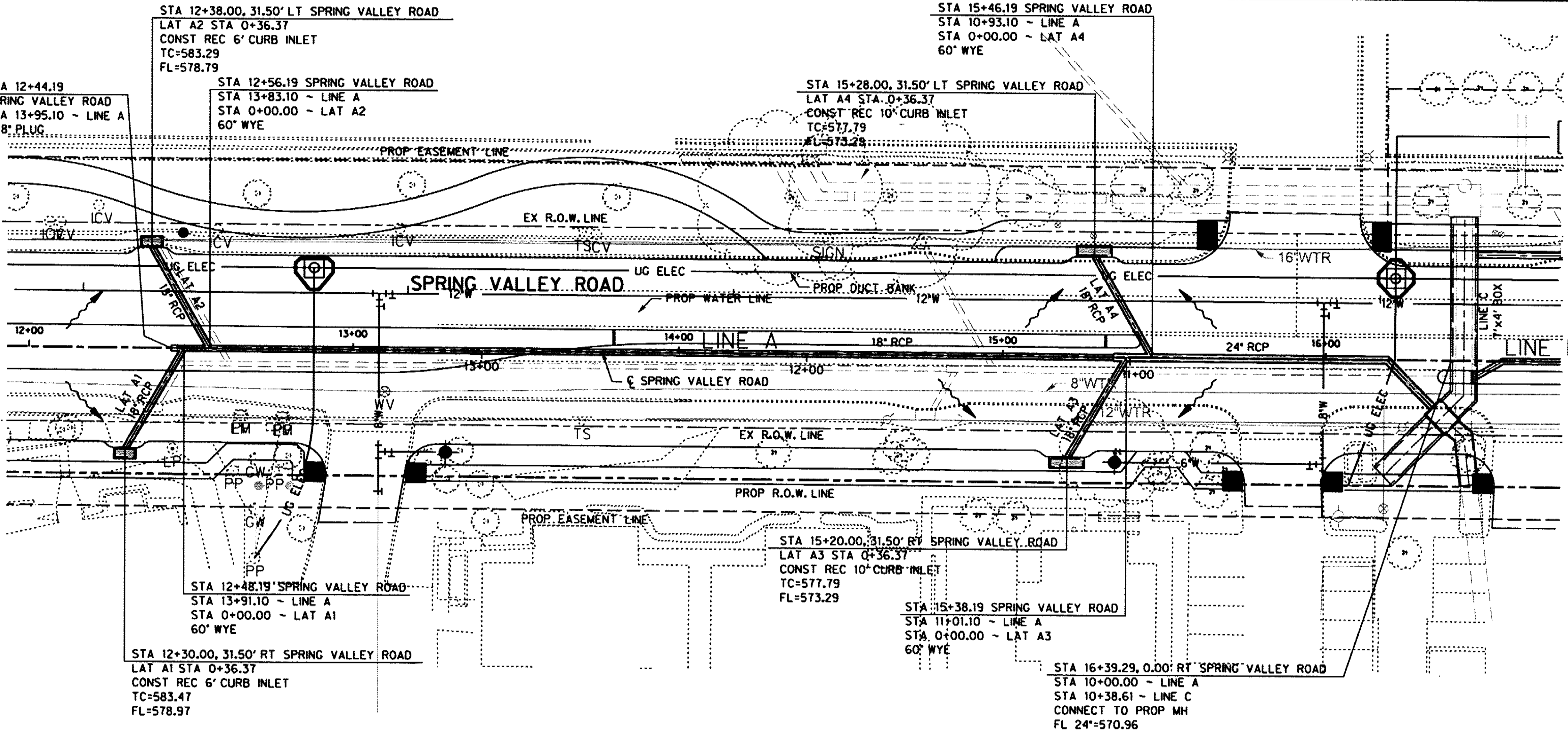
PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DAC 04	DAC-4

USER: ah1299 OFFICE: RCH PROJECT • 27530 FILE: 27530 STM 01.dgn TIME: 10:17:04 AM DATE: 12/7/2011



RECORD DOCUMENTS
December, 2011
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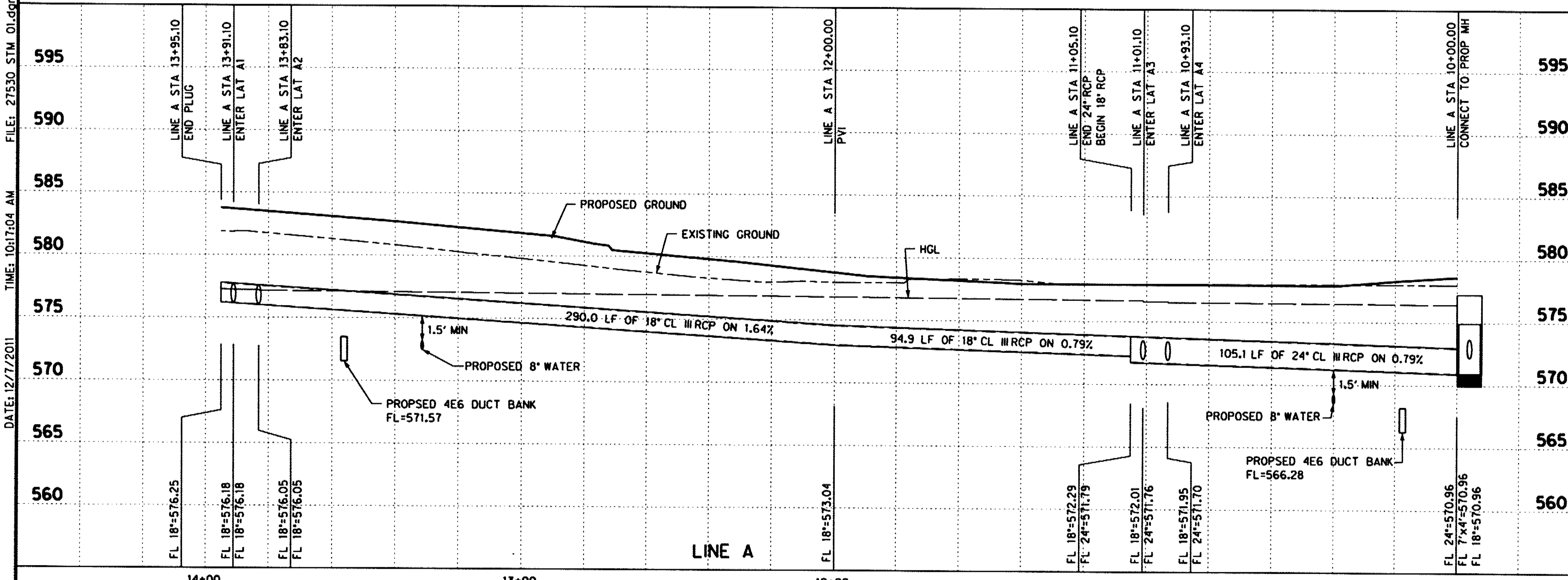
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL



STATE OF TEXAS M.E. ROMANOWSKI 56306 LICENSED PROFESSIONAL ENGINEER

Signature of Registrant, P.E. 12/8/2011 Date

RECORD DRAWINGS

NO.	REVISION	BY	DATE

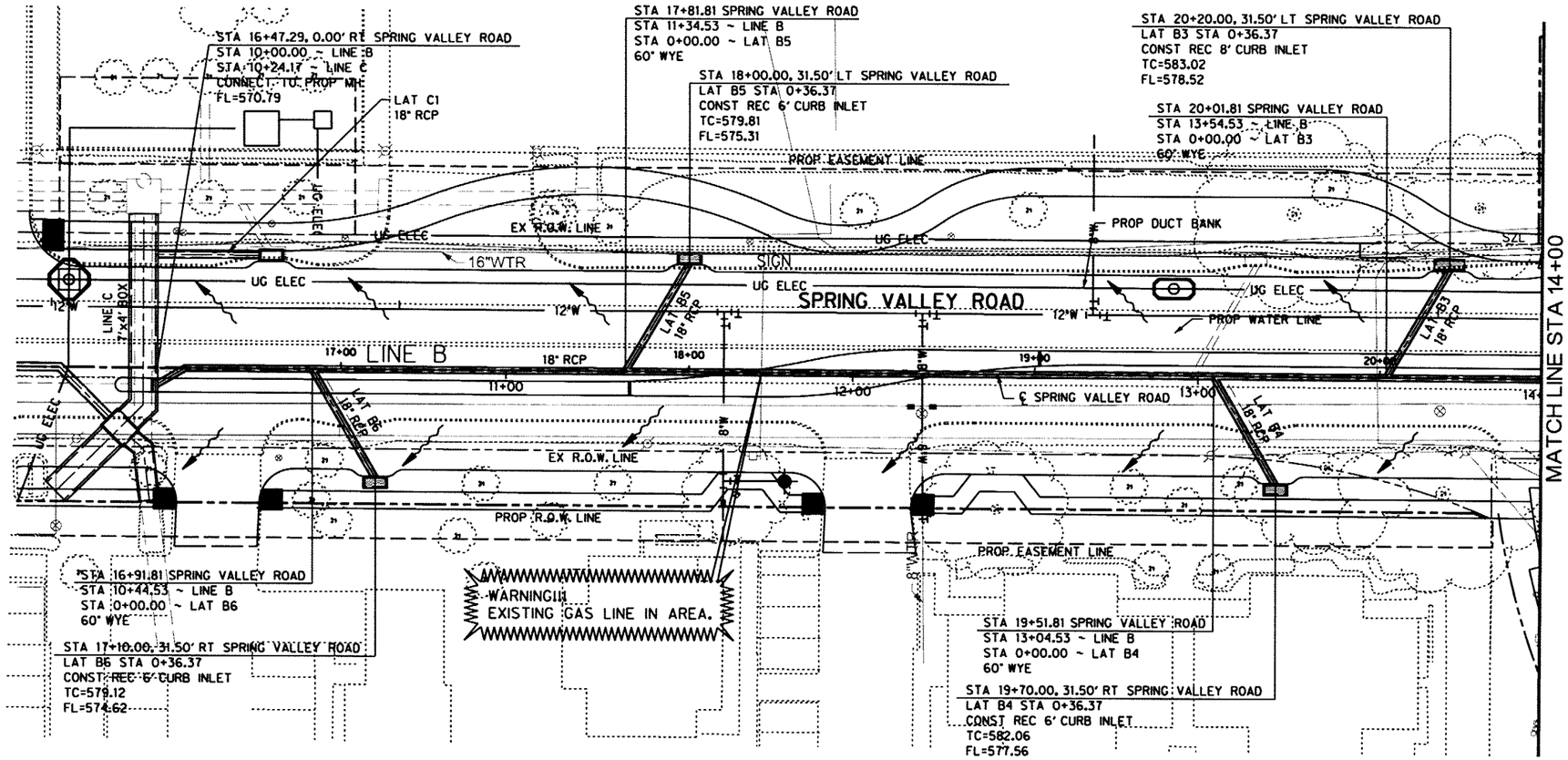
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

STORM DRAIN PLAN & PROFILE LINE A STA 10+00 TO 13+90.00

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275 TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 STM 01	STM-1



N

0 10 20 30 40 50
SCALE IN FEET

* CONTRACTOR TO FIELD VERIFY GAS LINE LOCATION AND COORDINATE WITH ATMOS TO RESOLVE CONFLICTS.

RECORD DOCUMENTS
December, 2011
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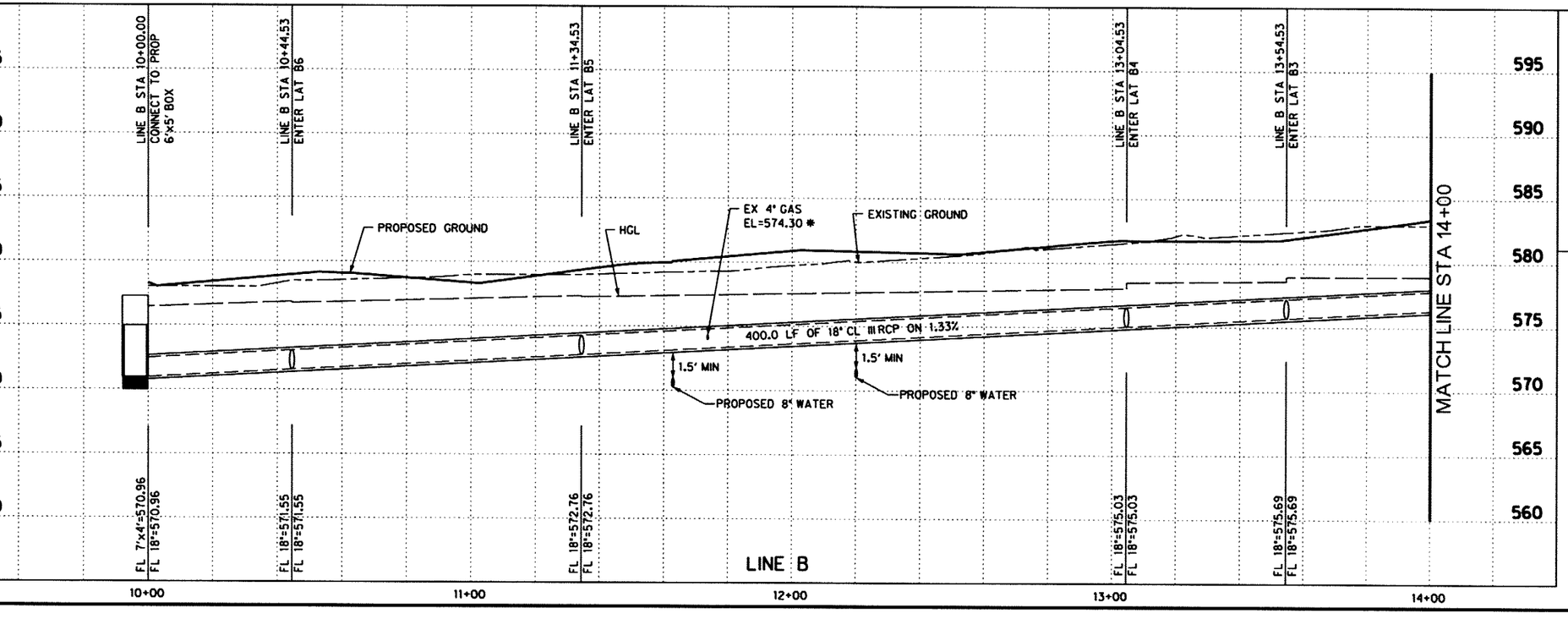
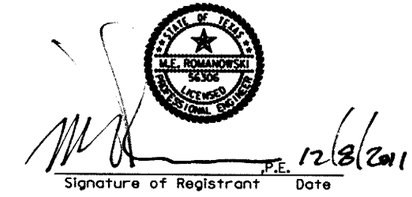
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 38 OF 163





Signature of Registrant P.E. 12/8/2011 Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

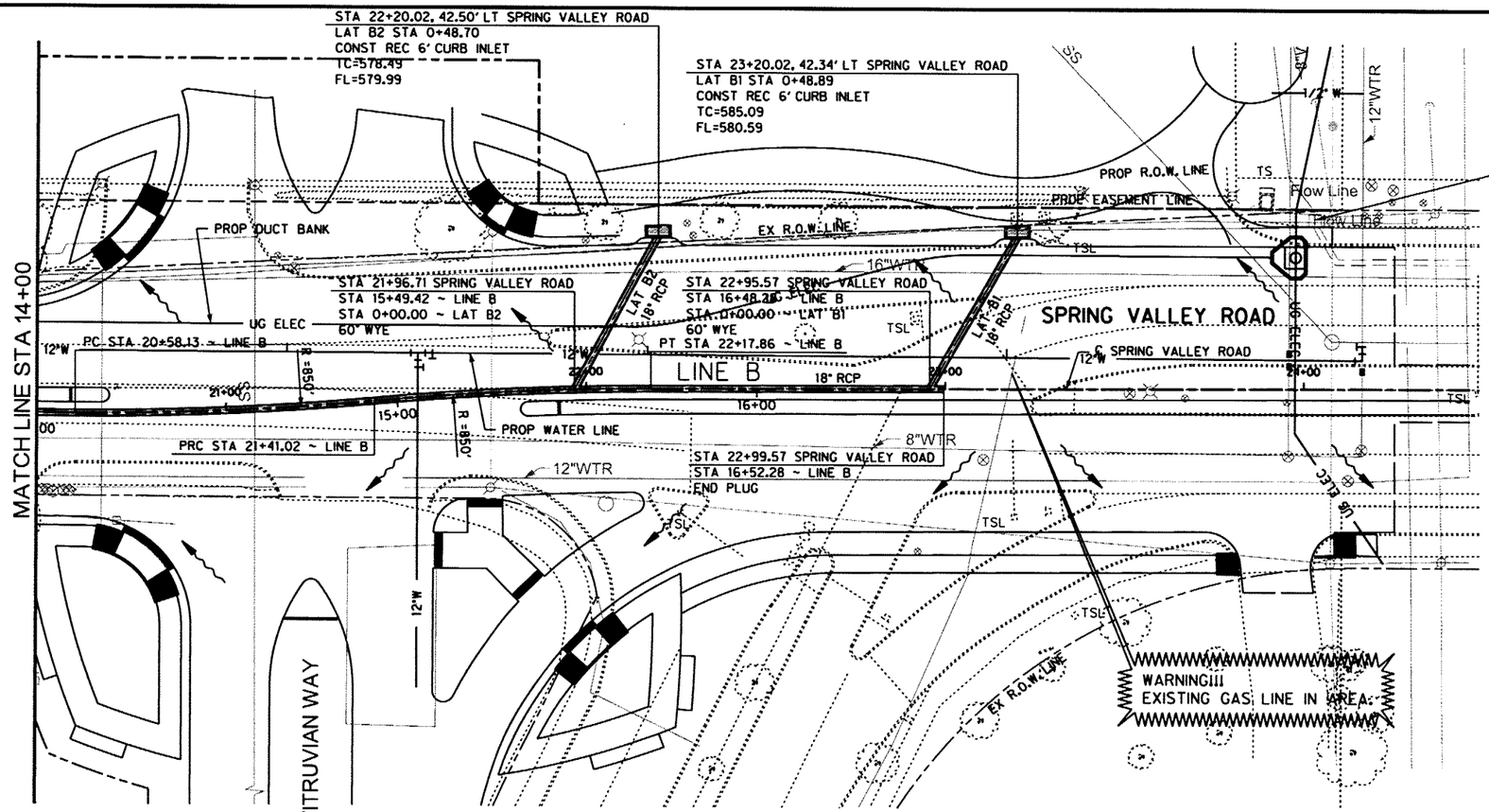
STORM DRAIN PLAN & PROFILE LINE B STA 10+00 TO 14+00

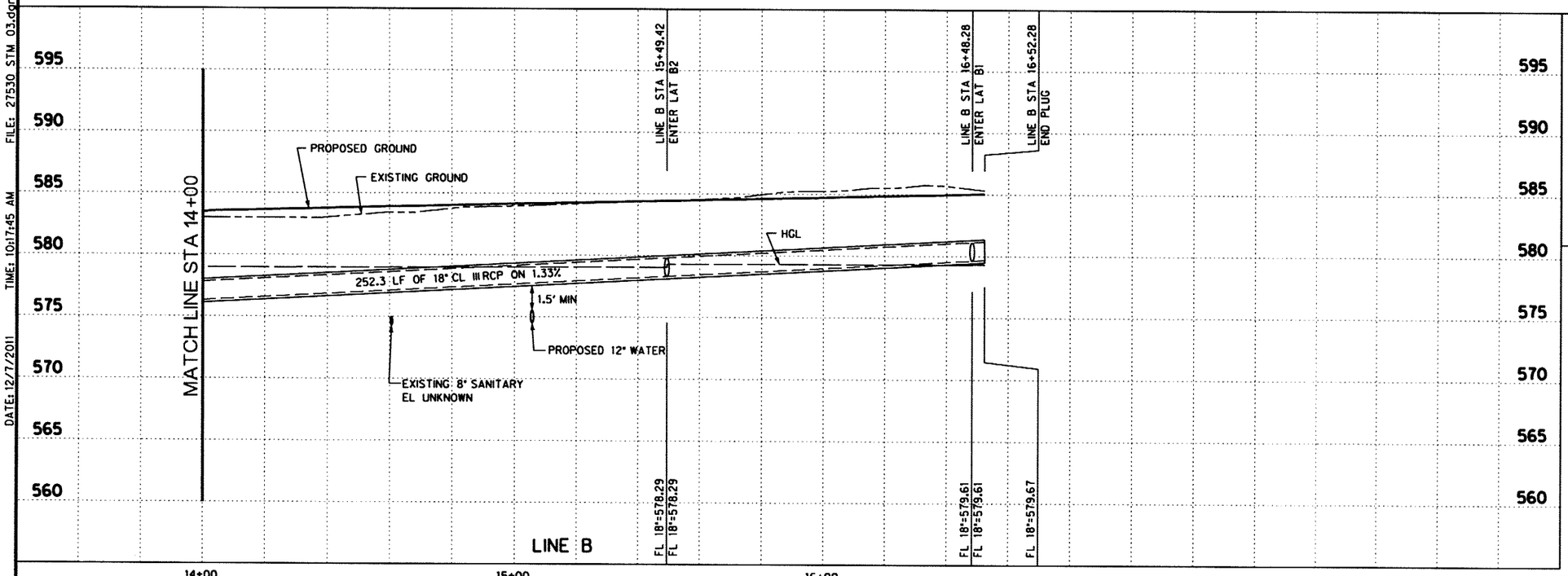
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 STM 02	STM-2

RECORD DRAWINGS

USER: dh1299
OFFICE: RCH
PROJECT # 27530
FILE: 27530 STM 02.dgn
TIME: 10:17:24 AM
DATE: 12/7/2011





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December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

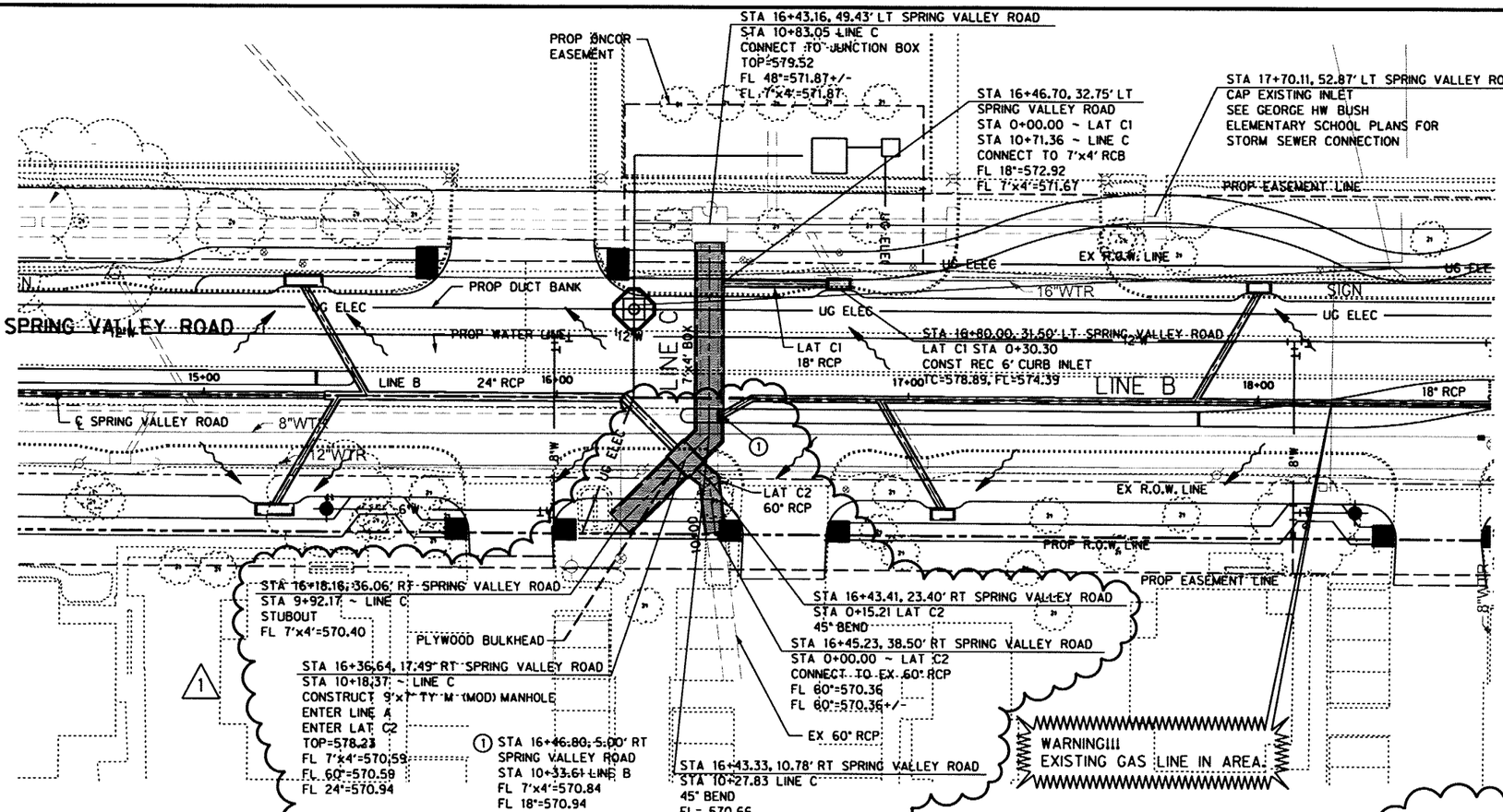
STORM DRAIN PLAN & PROFILE LINE B STA 14+00 TO 16+52.28

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 STM 03	STM-3

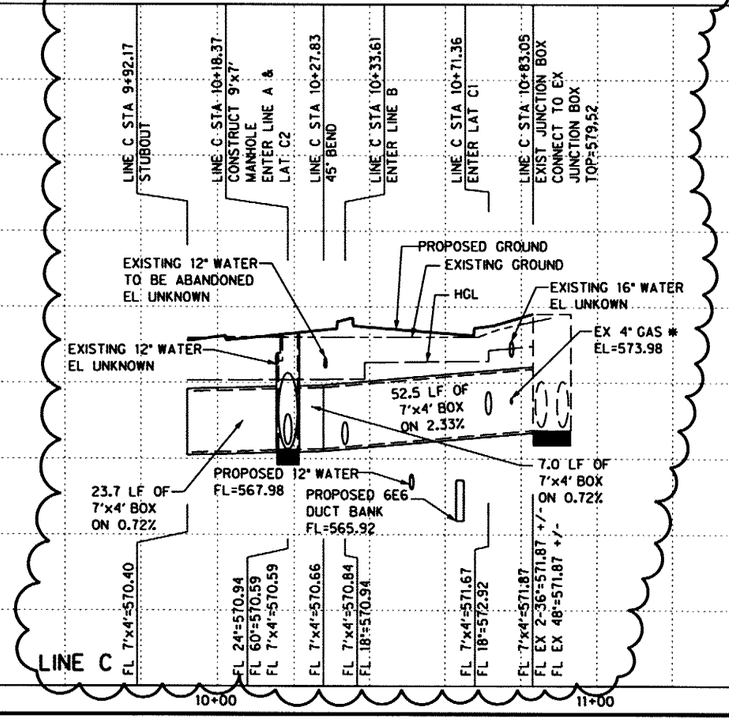
SHEET 39 OF 163

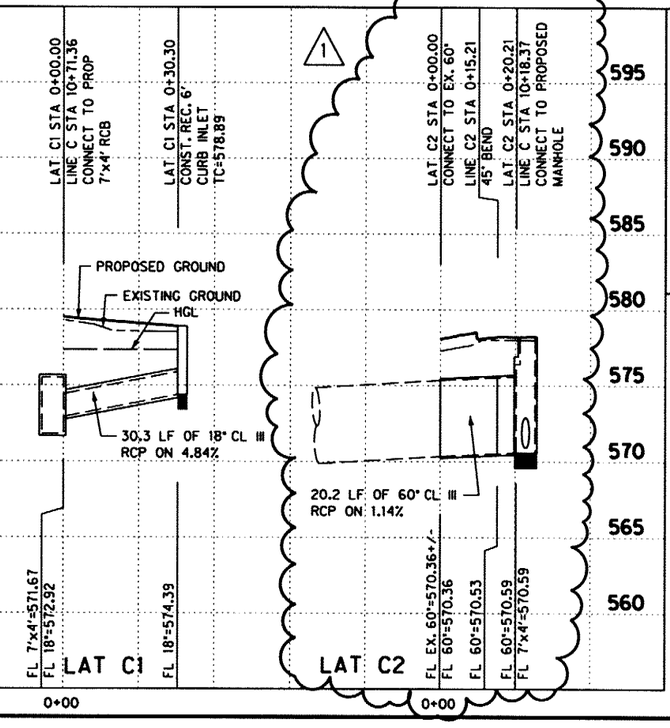
RECORD DRAWINGS



* CONTRACTOR TO FIELD VERIFY GAS LINE LOCATION AND COORDINATE WITH ATMOS TO RESOLVE CONFLICTS.

SHEET 40 OF 163





STATE OF TEXAS
M.F. ROMANOWSKI
92506
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/8/2011

NO.	REVISION	BY	DATE
1	STORM LINE REVISION	MER	12/14/10

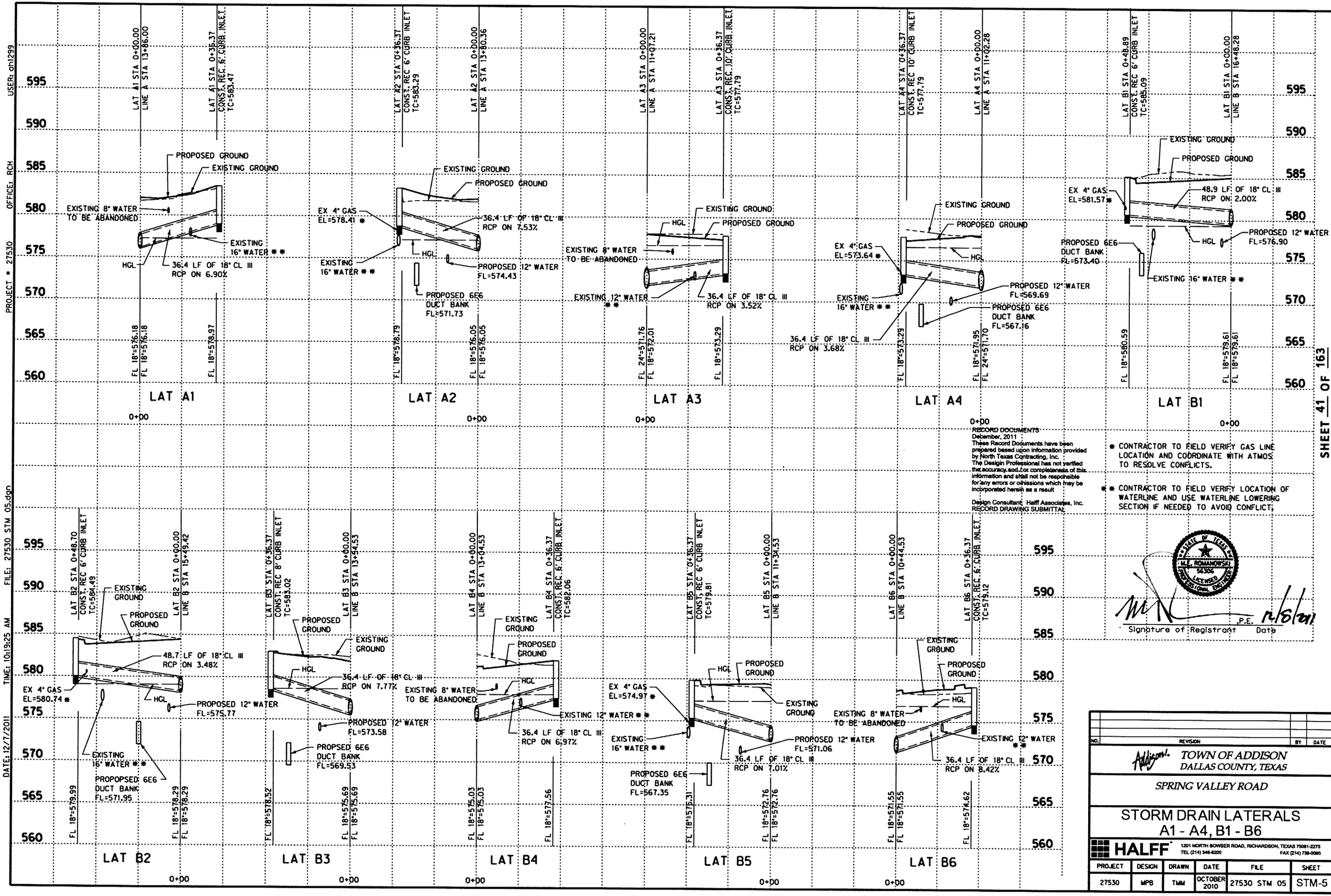
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

STORM DRAIN PLAN & PROFILE LINE C STA 10+00 TO 12+08.48

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 STM 04	STM-4



RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

* CONTRACTOR TO FIELD VERIFY GAS LINE LOCATION AND COORDINATE WITH ATMOS TO RESOLVE CONFLICTS.

* * CONTRACTOR TO FIELD VERIFY LOCATION OF WATERLINE AND USE WATERLINE LOWERING SECTION IF NEEDED TO AVOID CONFLICT.

STATE OF TEXAS
M.E. ROMANOWSKI
54306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/6/11
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

STORM DRAIN LATERALS A1 - A4, B1 - B6

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 STM 05	STM-5

STA 10+25.60, 17.50' LT SPRING VALLEY ROAD
STA 9+98.84 WATER LINE "A"
INSTALL:
1-12"x8" TEE
1-12" GATE VALVE
1-8" GATE VALVE
1-12" PLUG

PROP 8" GATE VALVE
PROP 8"x8" TEE
8" PLUG
EX 8" WATER TO BE ABANDONED
CONNECT TO EX 8" WATER
PROPOSED 8" WATER

STA 13+07.93, 17.50' LT SPRING VALLEY ROAD
STA 12+81.20 WATER LINE "A"
INSTALL:
1-12" GATE VALVE
1-12"x8" TEE
2-8" GATE VALVES
57 LF OF 8" PVC
1-8"x6" TEE
1-6" GATE VALVE
20 LF OF 6" PVC
1-STD. FIRE HYDRANT ASSEMBLY
CONNECT TO EXIST 8" WATERLINE

WOODWAY DR
PROP EASEMENT LINE
EXIST R.O.W. LINE
16"WTR
UG ELEC
SPRING VALLEY RD
STA 9+58.50, 23.73' RT
REMOVE & SALVAGE
EX. FIRE HYDRANT
RECONNECT DOMESTIC WATER SERVICE
PROP DUCT BANK
SPRING VALLEY ROAD
℄ SPRING VALLEY ROAD
ABANDON EXIST 8" WATERLINE
LINE A
EXIST R.O.W. LINE
PROP R.O.W. LINE
PROP EASEMENT LINE
FUTURE 8" WATER
ABANDON WATER VALVE
SPRING VALLEY RD
STA 13+28.45, 32.0' RT
ABANDON WATER VALVE
EX 8" WATER

1 SPRING VALLEY RD
STA 9+90.79, 32.00' RT
INSTALL:
1-STD. FIRE HYDRANT ASSEMBLY
34 LF OF 6" PVC
1-6" GATE VALVE

2 STA 10+25.60, 10.73' RT SPRING VALLEY ROAD
STA 9+75.64 WATER LINE "A"
CUT PLUG AND ABANDON EXIST 8" PVC EAST OF CONNECTION
INSTALL:
1-8"x8" TEE
1-8" GATE VALVE
2-8" PLUG
29 LF OF 8" PVC

INSTALL 401 LF 12" PVC WATER PIPE

MATCH LINE STA 14+00

N
0 10 20 30 40 60
SCALE IN FEET

NOTE:
ALL WATERLINE CROSSING WITH OTHER UNDER GROUND UTILITIES MUST COMPLY WITH APPLICABLE TCEQ REGULATIONS.

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 42 OF 163

RECORD DRAWINGS

WATERLINE "A"

STA 9+75.64 LINE "A" CONNECT TO EXIST 8" PVC
STA 9+98.87' LINE "A" INSTALL: 1-12"x8" TEE, 1-12" GATE VALVE, 1-8" GATE VALVE
STA 12+22.24 LINE "A" P.V.I.
STA 12+81.20 LINE "A" INSTALL: 1-12" GATE VALVE, 1-12"x8" TEE, 1-8" GATE VALVE, 57 LF OF 8" PVC, 1-8"X6" TEE, 1-6" GATE VALVE, 40 LF OF 6" PVC, 1-STD. FIRE HYDRANT ASSEMBLY, CONNECT TO EXIST 8" WATERLINE

PROPOSED GROUND
EXISTING GROUND
PROP 8" PVC ON -3.45%
PROP 12" PVC ON -3.45%
PROP 18" RCP LAT 'A2' FL=577.14
PROP 12" PVC ON -1.63%
PROPOSED 2E6 DUCT BANK FL=575.70
PROPOSED 4E6 DUCT BANK FL=571.49

FL 8"=583.07 +/-
FL 12"=582.12 +/-
FL 8"=582.29 +/-
FL 12"=574.43
FL 12"=573.47

600 595 590 585 580 575 570 565
10+00 11+00 12+00 13+00 14+00

MATCH LINE STA 14+00

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/7/2011

NO.	REVISION	BY	DATE
1	WATER LINE REVISION	MER	2/09/11
2	ADD 6" GATE VALVE	MER	6/09/11

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

WATER PLAN AND PROFILE
STA 10+00 TO 14+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UWTR 01	WTR-1

USER: dh1299
OFFICE: RCH
PROJECT # 27530
DATE: 12/7/2011 TIME: 10:26:45 AM FILE: 27530 UWTR 01 (REV 11).dgn

STA 15+99.27, 17.50' LT SPRING VALLEY ROAD
STA 15+72.54 WATER LINE "A"
INSTALL:
1-12" GATE VALVE
1-12"x8" TEE
1-8" GATE VALVE
52 LF OF 8" PVC
1-8" PLUG
1-8"x6" TEE
65 LF OF 6" PVC
1-6" GATE VALVE
1-STD. FIRE HYDRANT ASSEMBLY

STA 18+10.10, 17.50' LT SPRING VALLEY ROAD
STA 17+83.37 WATER LINE "A"
INSTALL:
1-12" GATE VALVE
1-12"x8" TEE
1-8" GATE VALVE
52 LF OF 8" PVC
1-8"x6" TEE
20 LF OF 6" PVC
1-STD. FIRE HYDRANT ASSEMBLY
1-8" PLUG

MATCH LINE STA 14+00

MATCH LINE STA 18+00

EXIST R.O.W. LINE

PROP EASEMENT LINE

SIGN

UG ELEC

PROP DUCT BANK

LINE A

16"WTR

12"W

17.5'

ABANDON EXIST 8" WATERLINE

8"WTR

12"WTR

6"W

8"W

SPRING VALLEY ROAD

℄ SPRING VALLEY ROAD

PROP R.O.W. LINE

FUTURE 8" WATER

REMOVE & SALVAGE EX FIRE HYDRANT
INSTALL:
1-6" PLUG

ABANDON WATER VALVE

WARNING!!!
EXISTING GAS LINE IN AREA.

INSTALL 400 LF 12" PVC WATER PIPE

N

0 10 20 30 40 60
SCALE IN FEET

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 43 OF 163

RECORD DRAWINGS

WATERLINE "A"

STA 15+72.54 LINE "A"
INSTALL:
1-12" GATE VALVE
1-12"x8" TEE
2-8" GATE VALVES
52 LF OF 8" PVC
1-8" PLUG
1-8"x6" TEE
65 LF OF 6" PVC
1-6" GATE VALVE
1-STD. FIRE HYDRANT ASSEMBLY

STA 16+25.67 LINE "A"
P.V.I.

STA 17+62.30 LINE "A"
P.V.I.
Δ = 2.76° DN

STA 17+83.37 LINE "A"
INSTALL:
1-12" GATE VALVE
1-12"x8" TEE
1-8" GATE VALVE
52 LF OF 8" PVC
1-8"x6" TEE
20 LF OF 6" PVC
1-STD. FIRE HYDRANT ASSEMBLY
1-8" PLUG

590
585
580
575
570
565
560
555

MATCH LINE STA 14+00

MATCH LINE STA 18+00

PROPOSED GROUND
EXISTING GROUND

PROP 18" RCP
LAT 'A4'
FL=572.48

PROP 7'x4' BOX
LINE 'C'
FL=571.22

PROP 18" RCP
LAT 'B5'
FL=573.77

PROP 12" PVC ON -1.63%

PROP 12" PVC ON +2.36%

PROP 12" PVC
ON +1.15%

PROPOSED 4E6
DUCT BANK
FL=566.20

WARNING EXISTING
GAS LINE IN AREA
ELEVATION UNKNOWN

FL 12"=568.70

FL 12"=567.83

FL 12"=571.06

FL 12"=571.30

14+00 15+00 16+00 17+00 18+00

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011 Date

NO.	REVISION	BY	DATE

Addison TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

WATER PLAN AND PROFILE STA 14+00 TO 18+00

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275 TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UWTR 02	WTR-2

STA 18+67.44, 17.50' LT SPRING VALLEY ROAD
STA 18+40.71 WATER LINE "A"
INSTALL:
1-12" GATE VALVE
1-12"x8" TEE
2-8" GATE VALVE
22 LF OF 8" PVC
CONNECT TO EX 8" PVC AT EX WATER VALVE
2-8" PLUGS

WARNING!!!
EXISTING GAS LINE IN AREA.

STA 19+16.73, 17.50' LT SPRING VALLEY ROAD
STA 18+90.00 WATER LINE "A"
INSTALL:
1-12"x8" TEE
1-12" GATE VALVE
1-8" GATE VALVE
47 LF OF 8" PVC
1-8" PLUG
CONNECT TO EXISTING 8" WATER LINE

STA 21+53.62, 12.35' LT SPRING VALLEY ROAD
STA 21+26.09 WATER LINE "A"
INSTALL:
2-12" GATE VALVE
1-12"x12" TEE
89 LF OF 12" PVC
CONNECT TO PROPOSED 12" VITRUVIAN WAY WATERLINE

EXISTING 8" WATER, CONTRACTOR TO FIELD VERIFY LOCATION PRIOR TO CONSTRUCTION

MATCH LINE STA 18+00

MATCH LINE STA 22+00

PROP EASEMENT LINE
EXIST R.O.W. LINE
UG ELEC
PROP DUCT BANK
LINE A
12"W
ABANDON EXIST 8" WATERLINE
℄ SPRING VALLEY ROAD
SPRING VALLEY ROAD
12"WTR
PROP R.O.W. LINE
8"WTR
CONNECT TO EX 8" WATERLINE
ABANDON WATER VALVE
INSTALL 400 LF 12" PVC WATER PIPE
VITRUVIAN WAY
SEE VITRUVIAN WAY PLANS FOR CONNECTION

19+00 20+00 21+00 22+00

N

0 10 20 30 40 50
SCALE IN FEET

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 44 OF 163

RECORD DRAWINGS

WATERLINE "A"

595 590 585 580 575 570 565 560

STA 18+40.71 LINE "A"
INSTALL:
1-12" GATE VALVE
1-12"x8" TEE
22 LF OF 8" PVC
CONNECT TO EX 8" PVC AT EX WATER VALVE

STA 21+26.09 LINE "A"
INSTALL:
2-12" GATE VALVE
1-12"x12" TEE
89 LF OF 8" PVC
CONNECT TO PROPOSED 12" VITRUVIAN WAY WATERLINE

MATCH LINE STA 18+00

MATCH LINE STA 22+00

PROPOSED GROUND
EXISTING GROUND
PROP 18" RCP LAT 'B3' FL=576.81
PROP 12" PVC ON +1.15%
EXISTING 8" SANITARY EL UNKNOWN
PROP 18" RCP LAT 'B2' FL=578.48
WARINING EX GAS LINE IN AREA ELEVATION UNKNOWN

FL 12"=571.96
FL 12"=575.24

18+00 19+00 20+00 21+00 22+00

STATE OF TEXAS
M.E. ROMANOWSKI
54306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

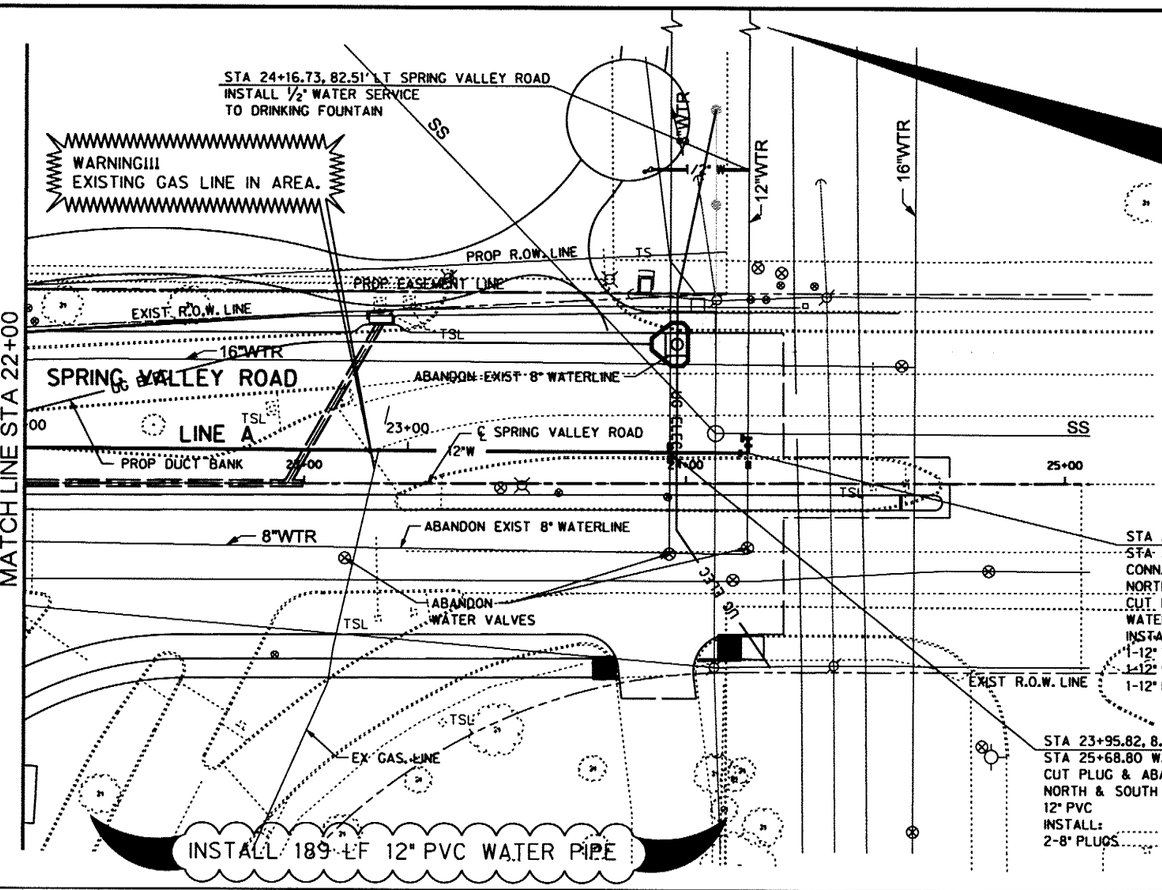
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

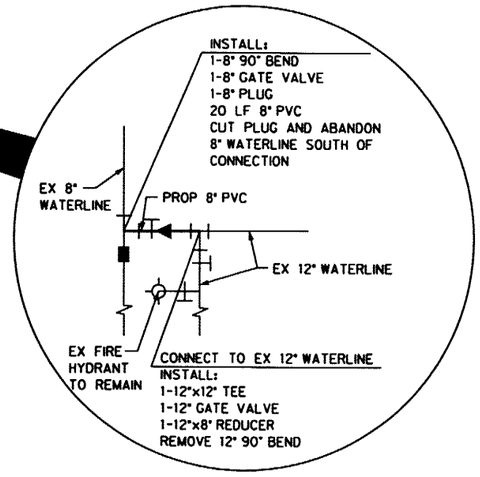
SPRING VALLEY ROAD

WATER PLAN AND PROFILE STA 18+00 TO 22+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UWTR 03	WTR-3

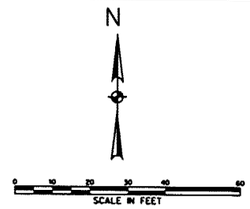




DETAIL A

STA 24+16.30, 8.03' LT SPRING VALLEY ROAD
STA 23+89.28 WATER LINE "A"
CONN. TO EXIST 12" PVC WATER LINE
NORTH OF PROPOSED 12" PVC
CUT PLUG & ABANDON EX 12"
WATER LINE SOUTH OF PROP 12" PVC
INSTALL:
1-12" VALVE
1-12" 90° BEND
1-12" PLUG

STA 23+95.82, 8.18' LT SPRING VALLEY ROAD
STA 25+68.80 WATER LINE "A"
CUT PLUG & ABANDON 8" WATERLINE
NORTH & SOUTH OF PROPOSED
12" PVC
INSTALL:
2-8" PLUGS



RECORD DOCUMENTS
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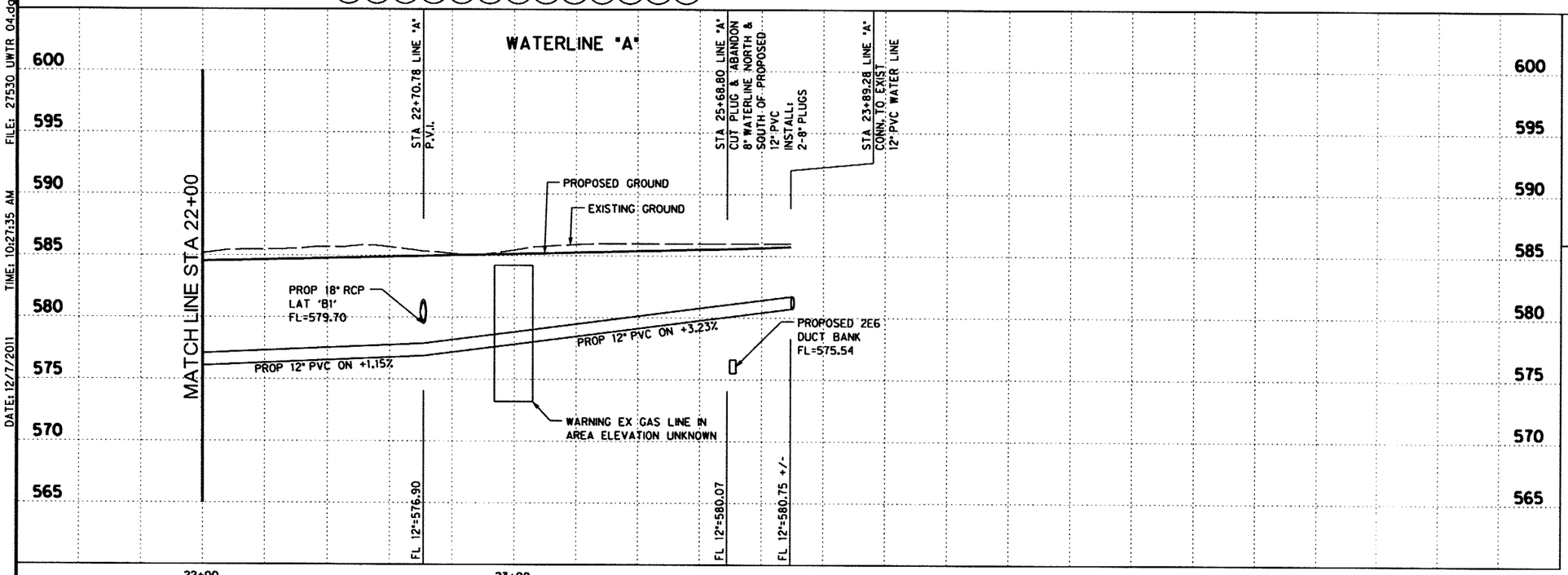
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 45 OF 163

RECORD DRAWINGS



M.E. ROMANOWSKI
84306
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

Signature of Registrant P.E. Date 12/6/2011

NO.	REVISION	BY	DATE

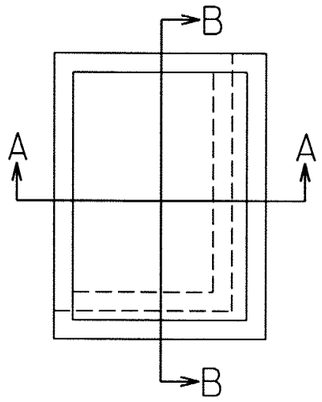
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

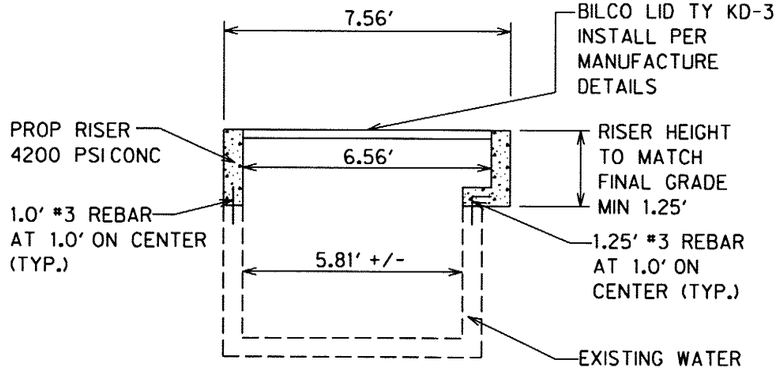
WATER PLAN AND PROFILE
STA 22+00 TO 23+89.28

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

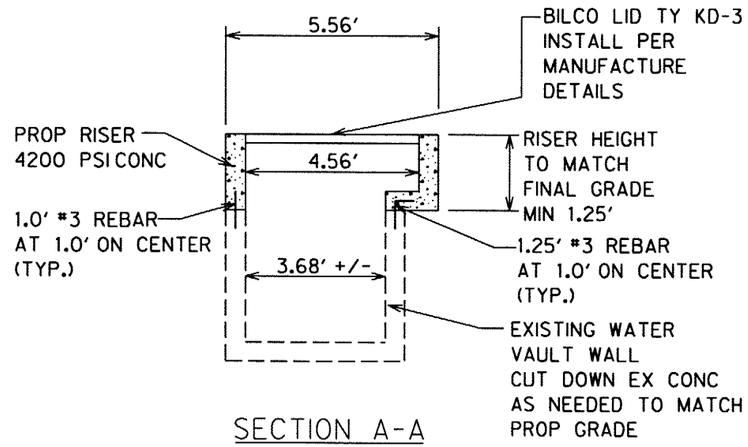
PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UWTR 04	WTR-4



TOP VIEW



SECTION B-B



SECTION A-A

WATER VAULT RISER

NTS

1

RECORD DOCUMENTS
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc.
The Design Professional has not verified the accuracy and / or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result

Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011 Date

NO.	REVISION	BY	DATE
1	ADDED WATER VAULT RISER DETAIL	MER	6/9/2011

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

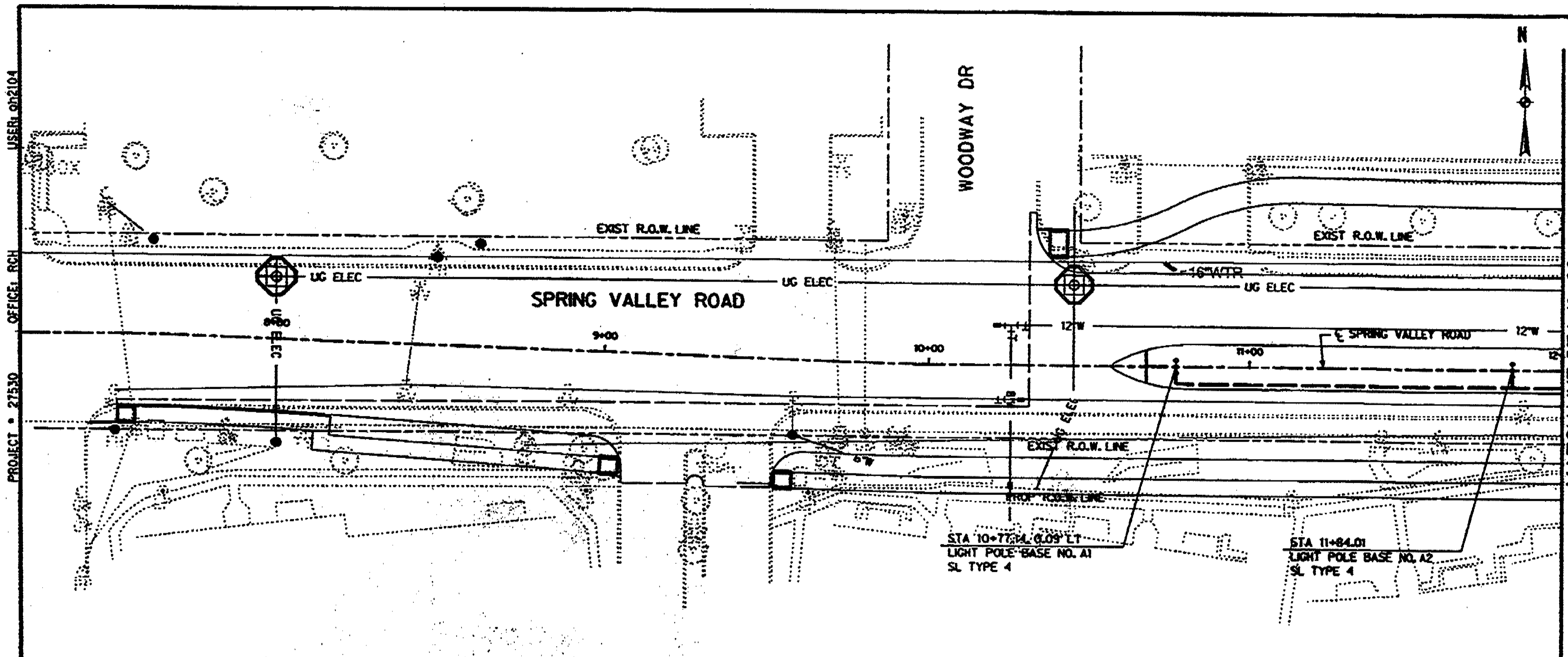
WATER DETAILS

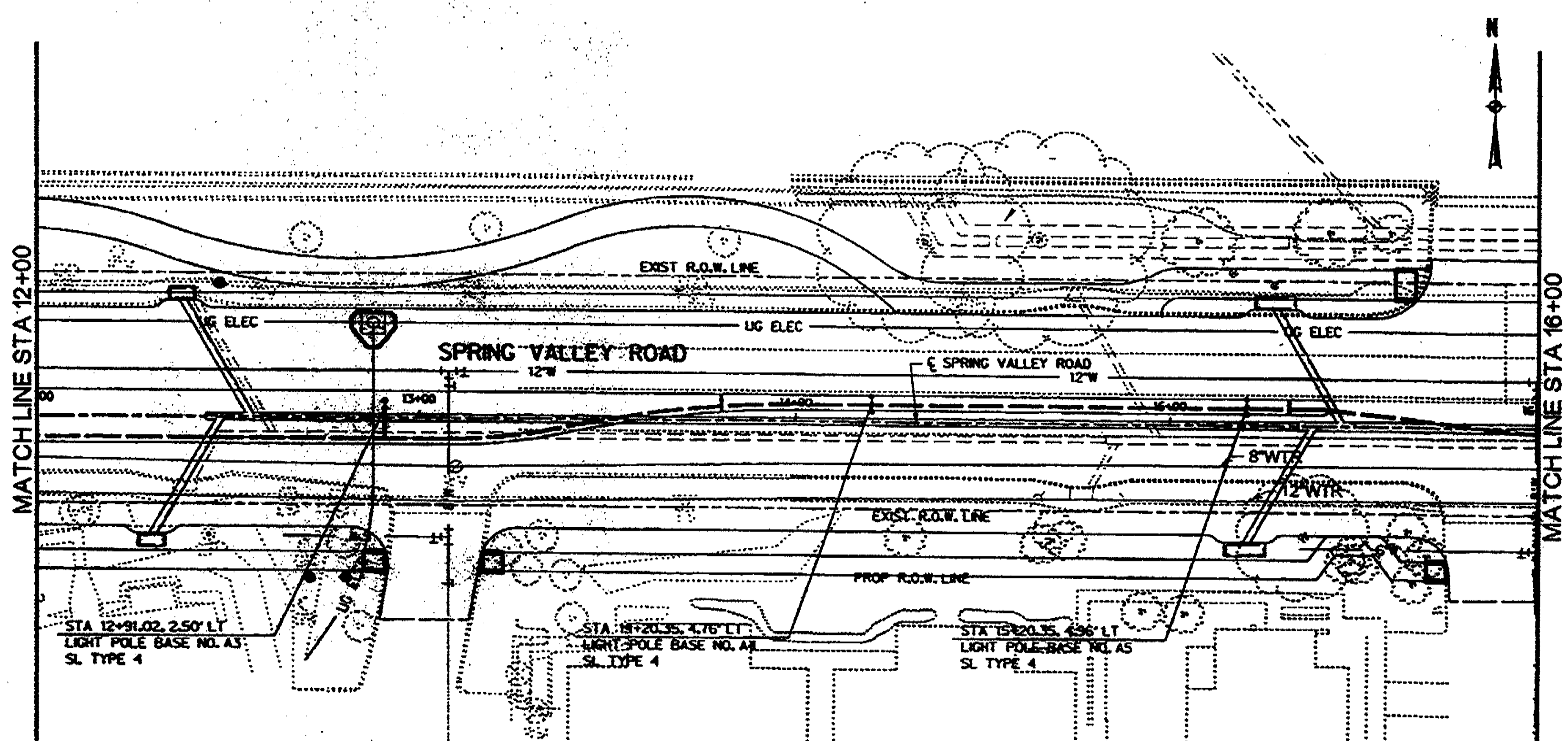
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DTW 01	DT-W

RECORD DRAWINGS

PROJECT # 27530 OFFICE: RCH USER: ah1299
FILE: 27530 DTW 01.dgn
TIME: 10:27:57 AM
DATE: 12/7/2011





STREET LIGHTING & CONDUIT NOTES

1. REFER TO "GENERAL NOTES" FOR THE GENERAL CONSTRUCTION NOTES FOR THE PROJECT
2. REFER TO SHEET XX FOR ELECTRIC DETAILS - CONDUIT RIGID METAL CONDUIT ELBOWS ARE NOT REQUIRED.
3. REFER TO SHEET XX FOR ELECTRIC DETAILS - CONDUCTORS
4. REFER TO SHEET XX FOR ELECTRIC DETAILS - GROUND BOXES, RIGID METAL CONDUIT ELBOS ARE NOT REQUIRED. CONCRETE APRON IS NOT REQUIRED
5. REFER TO SHEET XX FOR ELECTRIC DETAILS - SERVICE ENCLOSURE & NOTES, ELECTRICAL SERVICE TYPE D
6. REFER TO SHEET XX FOR ELECTRIC DETAILS - ELECTRICAL SERVICE SUPPORT PEDESTAL TYPE PS. PEDESTAL SERVICE SHALL BE ALUMINUM, COLOR PINE GREEN, RIGID ELBOWS ARE NOT REQUIRED.
7. WATER, SANITARY SEWER, AND STORM DRAIN LINES ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL LOCATE ALL UTILITY LINES IN THE AREA PRIOR TO DIGGING.
8. INSTALL SCHEDULE 40 PVC UNDERGROUND (24" MIN COVER). ALL STREET AND DRIVEWAY CROSSINGS (30" MIN COVER). ALL BENDS TO LONG RADIUS.
9. ALL CONDUIT POLE BASES TO BE WITHING THE DRILLED SHAFT FOUNDATION. NO EXPOSED CONDUIT AT POLE BASES WILL BE ALLOWED.
10. SL TYPE 1 - SINGLE 100W 240V MH LUMINAIRE ON 11'-8" POLE. COLOR SILVER - REFERENCE SPECIAL PROVISIONS
    SL TYPE 2 - TWIN 100W 240V MH LUMINAIRE ON 11'-8" POLE. COLOR SILVER - REFERENCE SPECIAL PROVISIONS
    SL TYPE 3 - SINGLE 400W 240V MH LUMINAIRE ON 30' POLE. COLOR SILVER - REFERENCE SPECIAL PROVISIONS
    SL TYPE 4 - TWIN 400W 240V MH LUMINAIRE ON 30' POLE. COLOR SILVER - REFERENCE SPECIAL PROVISIONS
    SL TYPE 5 - BK K2-67 70W 120V TREE UPLIGHT RECESSED IN GRADE. REFERENCE SPECIAL PROVISIONS
11. CONNECTION TO POWER COMPANY CIRCUITS TO BE MADE ONLY BY POWER COMPANY.
12. UNLESS OTHERWISE INDICATED ALL WORK SHALL CONFORM TO THE 2008 NATIONAL ELECTRICAL CODE (NFPA 70) AND THE 2007 NATIONAL ELECTRICAL SAFETY CODE (ANDI.22).
13. ALL EMPTY CONDUIT INSTALLED FOR FUTURE EXTENSION SHALL BE TURNED UP AND EXTENDED UP TO FINISH GRADE. CAP ENDS OF ALL CONDUITS.

SHEET 47 OF 163

STATE OF TEXAS — DANNIE CUMMINGS — 60347 — LICENSED PROFESSIONAL ENGINEER

10/1/2010

NO.	REVISIONS	DATE

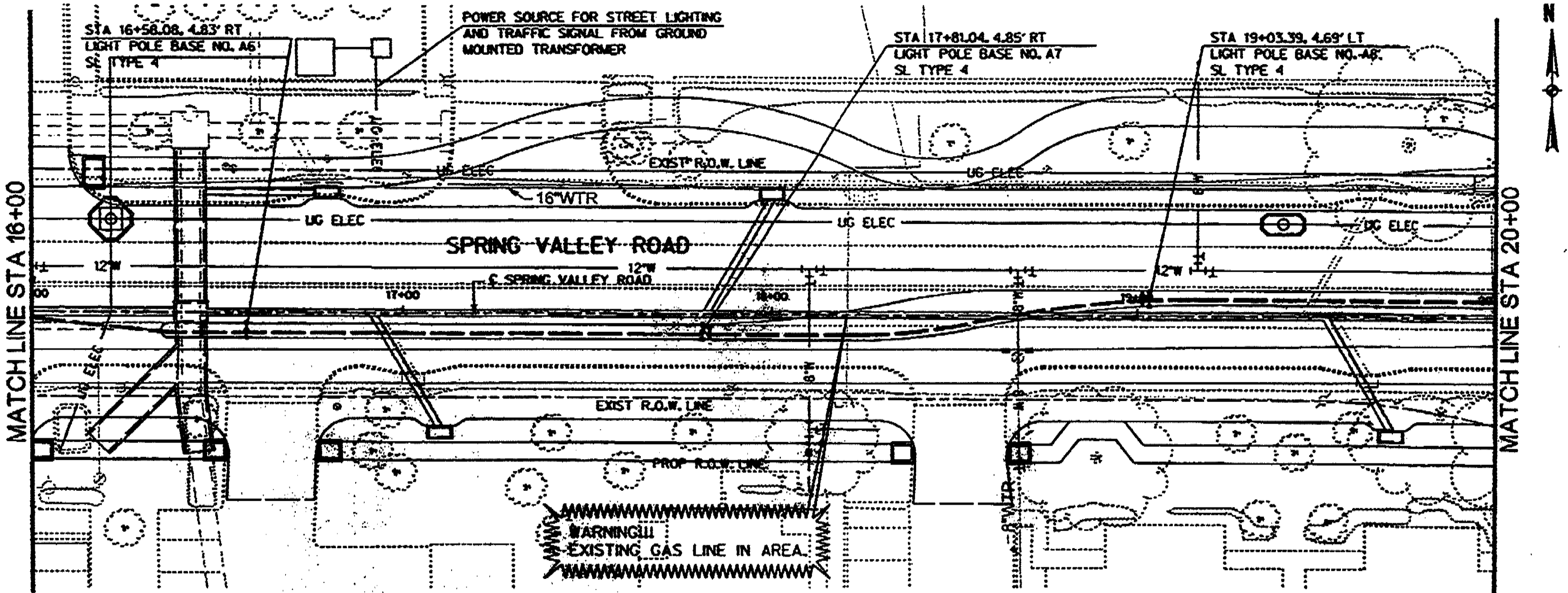
LIGHT FIXTURE LAYOUT
STA 7+49.89 TO STA 16+00

C&P ENGINEERING, LTD.
1801 Gateway Blvd. Suite 101 Richardson, Texas 75080
972.644.2800 Fax 972.644.2817 www.cp-engineering.com
Texas Reg. No. F-3185

DESIGNED BY	DATE	SCALE	JOB NUMBER	SHEET
C&P	8/10	1"=20'	10055	IP-1

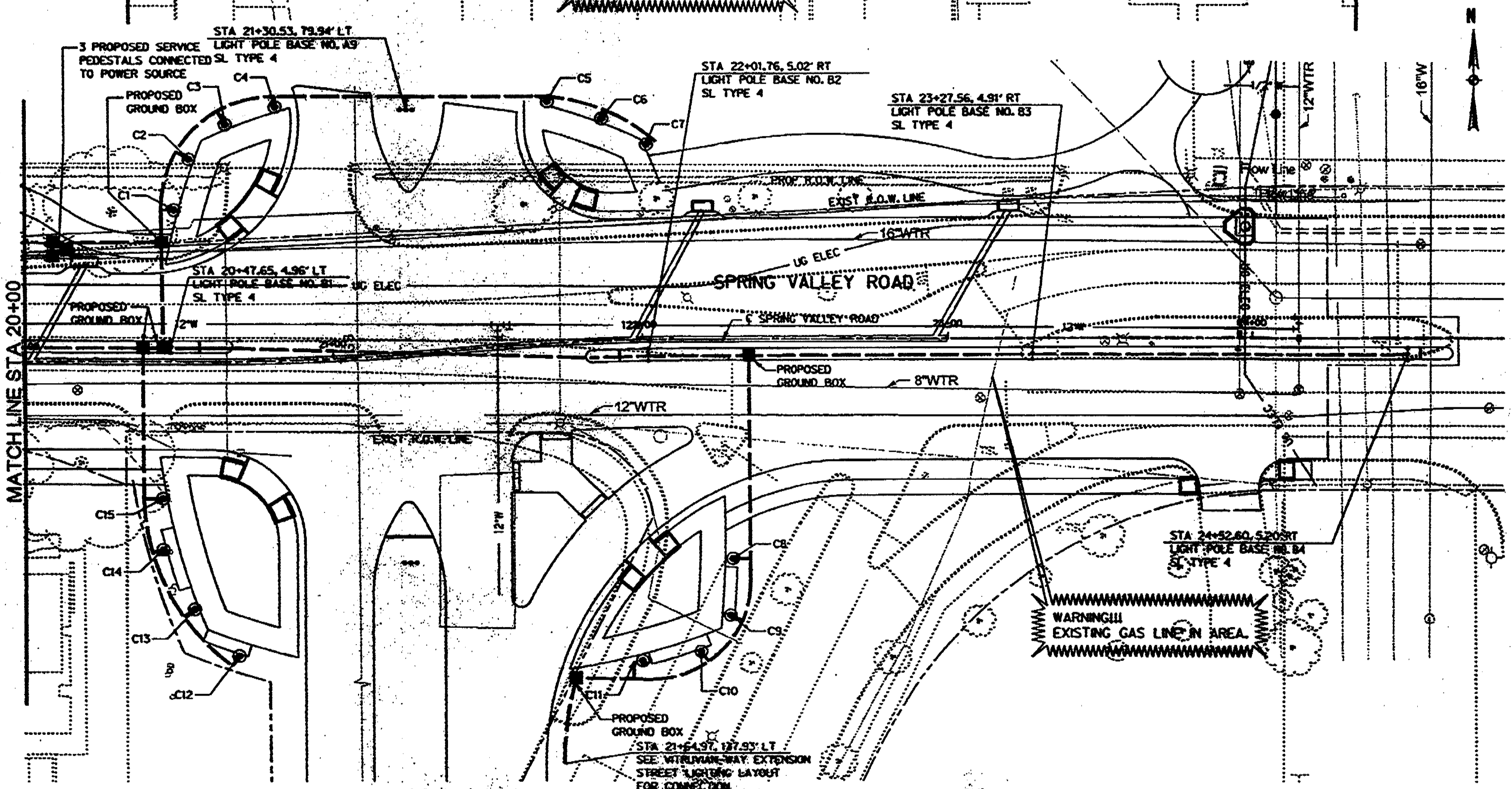
USER: gh2104 OFFICE: RCH PROJECT: 27530 FILE: 27530 ILLUM 01.dgn TIME: 10:46:38 AM DATE: 9/29/2010

USER: gh2104 OFFICE: RCH PROJECT # 27530



TY 5 FIXTURE MOUNT ON IN-GRADE BALLAST

FIXTURE NO.	STATION	OFFSET
C1	20+48.89	50.03' LT
C2	20+53.88	68.98' LT
C3	20+66.54	77.70' LT
C4	20+84.22	83.17' LT
C5	21+74.19	79.17' LT
C6	21+89.98	72.81' LT
C7	22+02.96	64.01' LT
C8	22+28.72	71.98' RT
C9	22+27.81	90.44' RT
C10	22+18.38	102.77' RT
C11	21+98.29	105.28' RT
C12	20+67.90	96.35' RT
C13	20+54.72	80.96' RT
C14	20+44.69	63.61' RT
C15	20+44.74	45.04' RT



DATE: 9/29/2010 TIME: 10:47:13 AM FILE: 27530_ILUM_02.dgn

STATE OF TEXAS — DANNIE CUMMINGS — 60347 — LICENSED PROFESSIONAL ENGINEER

10/1/2010

NO.	REVISIONS	DATE

LIGHT FIXTURE LAYOUT

STA 7+49.89 TO STA 16+00

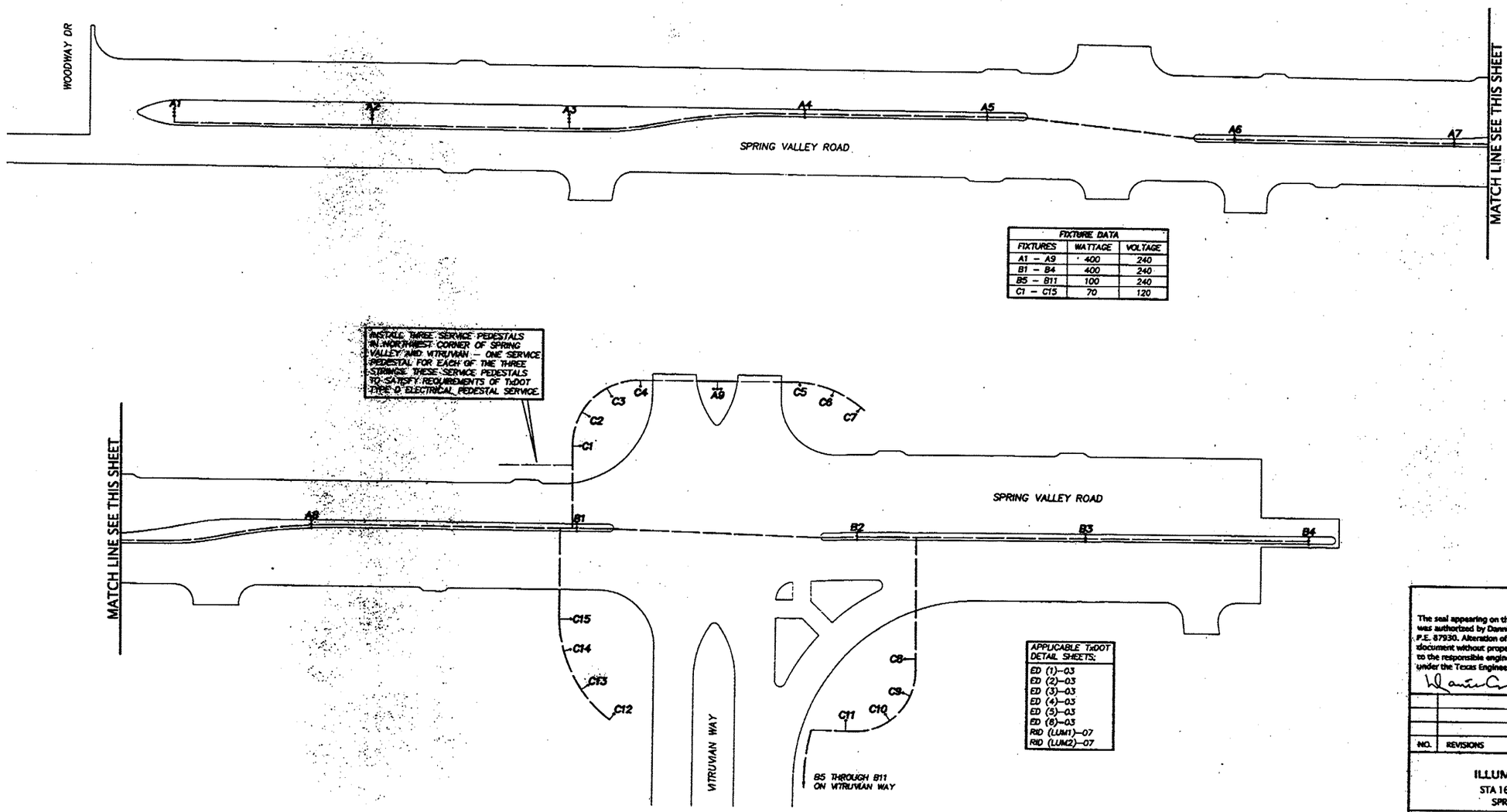
C&P ENGINEERING, LTD.
1801 Gateway Blvd. Suite 101 Richardson, Texas 75080
972.644.2800 Fax 972.644.2817 www.cp-engineering.com
Texas Reg. No. F-3185

C&P	8/10	1"=20'	10035	IP-2

STRING 1 WIRING FIXTURES A1 – A9
IN CONDUIT RUNS: 2 #6 AWG XHHW 1 #6 AWG NEUTRAL 1 #8 AWG BARE IN POLES: 2 #12 AWG THHN

STRING 2 WIRING FIXTURES B1 – B11
IN CONDUIT RUNS: 2 #6 AWG XHHW 1 #6 AWG NEUTRAL 1 #8 AWG BARE IN POLES: 2 #12 AWG THHN

STRING 3 WIRING FIXTURES C1 – C15
IN CONDUIT RUNS: 2 #6 AWG XHHW 1 #6 AWG NEUTRAL 1 #8 AWG BARE IN POLES: 2 #12 AWG THHN



FIXTURE DATA		
FIXTURES	WATTAGE	VOLTAGE
A1 – A9	400	240
B1 – B4	400	240
B5 – B11	100	240
C1 – C15	70	120

APPLICABLE TxDOT DETAIL SHEETS:
ED (1)–03
ED (2)–03
ED (3)–03
ED (4)–03
ED (5)–03
ED (8)–03
RID (LUM1)–07
RID (LUM2)–07

30 15 0 30 60

SHEET 49 OF 163

The seal appearing on this document was authorized by Dannie Cummings, P.E. 87930. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

STATE OF TEXAS
DANNIE CUMMINGS
60347
LICENSED
PROFESSIONAL ENGINEER

10/1/2010

NO.	REVISIONS	DATE

ILLUMINATION PLANS

STA 16+00 TO STA 26+11.52
SPRING VALLEY ROAD

C&P ENGINEERING, LTD.
1801 Gateway Blvd. Suite 101
Richardson, Texas 75080
972.644.2800
Fax 972.644.2817
www.c-pengineering.com
Texas Reg. No. F-3185

DRAWN BY:	DATE:	SCALE:	JOB NUMBER:	SHEET:
C&P	8/10	1"=30'	10035	IP-3

SPRING VALLEY RD
STA 8+00.00, 18.27' LT
STA 10+00.00 ELECTRIC LINE "A"
CONSTRUCT 4-WAY
DUCT BANK MANHOLE
TOP=586.87

SPRING VALLEY RD
STA 10+45.01, 49.30' LT
STA 10+00.00 LAT 2

SPRING VALLEY RD
STA 10+45.07, 25.25' LT
STA 12+44.34
CONSTRUCT 4-WAY
DUCT BANK MANHOLE
TOP=587.46

WOODWAY DR

OVERHEAD ELECTRIC LINE
TO MAINTAIN EXISTING SERVICE

PROP. EASEMENT
PROP R.O.W. LINE
EXIST R.O.W. LINE
LINE A
SPRING VALLEY ROAD
℄ SPRING VALLEY ROAD
PROP 12" WATER LINE
16"WTR
UG ELEC
6E6
2E6
LAT-1 2E6
LAT-2 2E6
12"W
SSMH
PROP. R.O.W. LINE
PROP. EASEMENT
FUTURE DUCT BANK

SPRING VALLEY RD
STA 8+01.02, 32.51' RT
STA 10+57.94 LAT 1

SPRING VALLEY RD
STA 10+33.60, 39.00' RT
STA 10+90.57 LAT 2

MATCH LINE STA 14+00

SCALE IN FEET 0 10 20 30 40 60

N

8" TEMPORARY ASPHALT PAVEMENT (SEE TRAFFIC CONTROL PLANS)
EX 8" CONCRETE PAVEMENT
6'
2'
4'
COMPACTED SELECT BACKFILL
PROPOSED DUCT BANK

DUCT BANK TRENCH DETAIL
N.T.S.

* CONTRACTOR TO FIELD VERIFY LOCATION OF GAS LINE COORDINATE WITH ATMOS TO RESOLVE CONFLICTS.

RECORD DOCUMENTS
December, 2011
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The Design Professional has not verified the accuracy and / or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result

Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 50 OF 163

STA 10+00.00
CONSTRUCT 4-WAY
DUCT BANK MANHOLE
TOP=586.87
FL=577.29

STA 12+44.34
CONSTRUCT 4-WAY
DUCT BANK MANHOLE
TOP=587.46
FL=574.88

EXISTING GROUND
PROPOSED GROUND
PROP 6E6 DUCT BANK ON (-)4.03%
PROP 6E6 DUCT BANK ON (-)11.65%
WARNING EX GAS LINE IN AREA ELEVATION UNKNOWN *

600 595 590 585 580 575 570 565

10+00 11+00 12+00 13+00 14+00

MATCH LINE STA 14+00

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED PROFESSIONAL ENGINEER

12/8/2011
P.E.
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

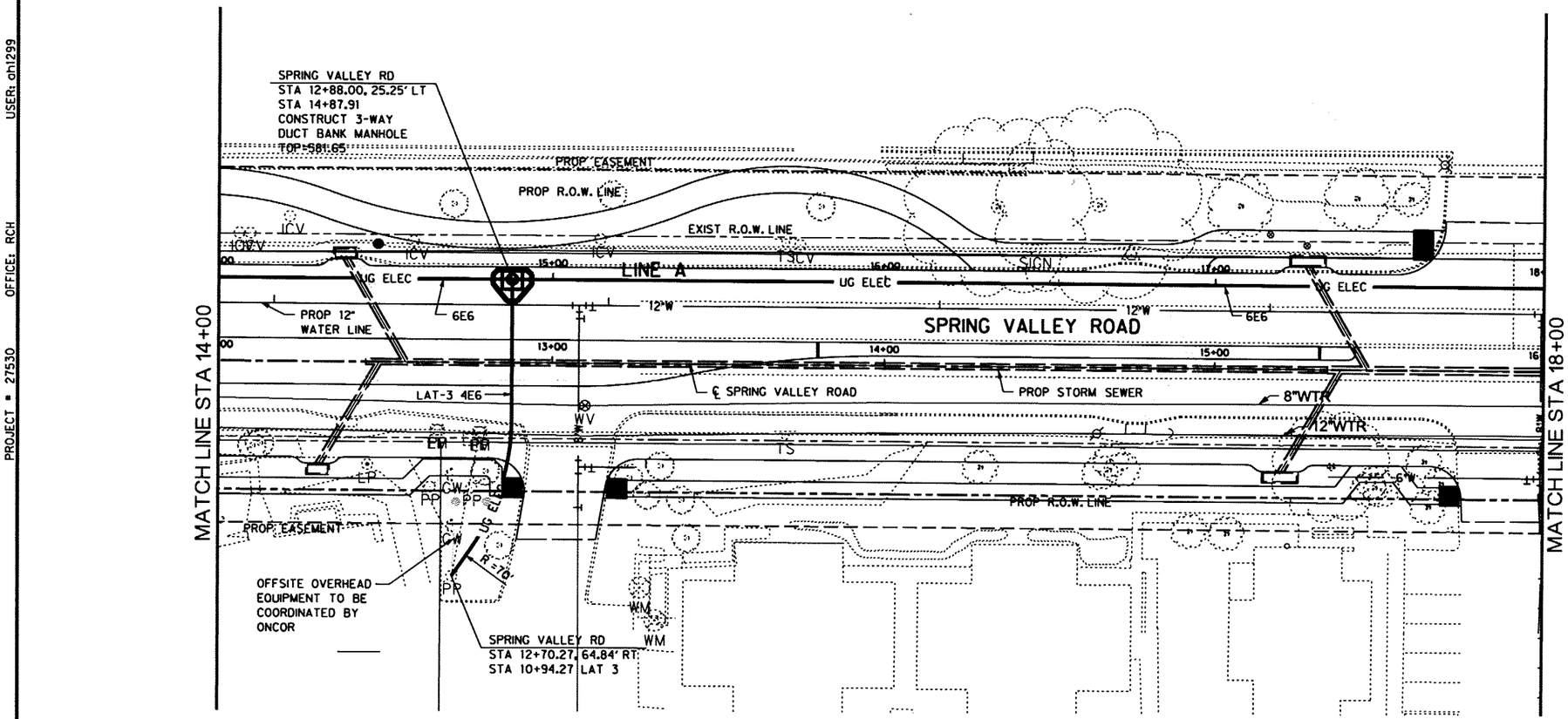
SPRING VALLEY ROAD

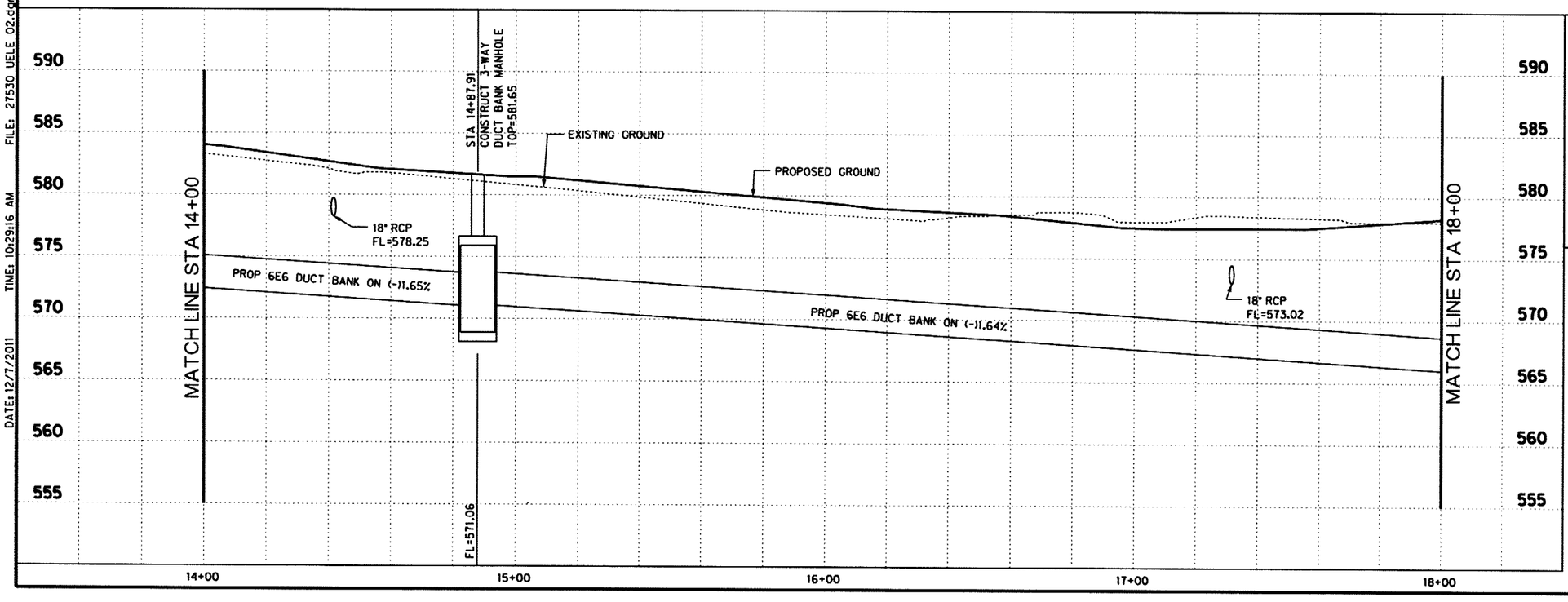
DUCT BANK PLAN AND PROFILE
STA 10+00 TO 14+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UELE 01	ELE-1

RECORD DRAWINGS





N

0 10 20 30 40 60
SCALE IN FEET

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/8/2011

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

DUCT BANK PLAN AND PROFILE STA 14+00 TO 18+00

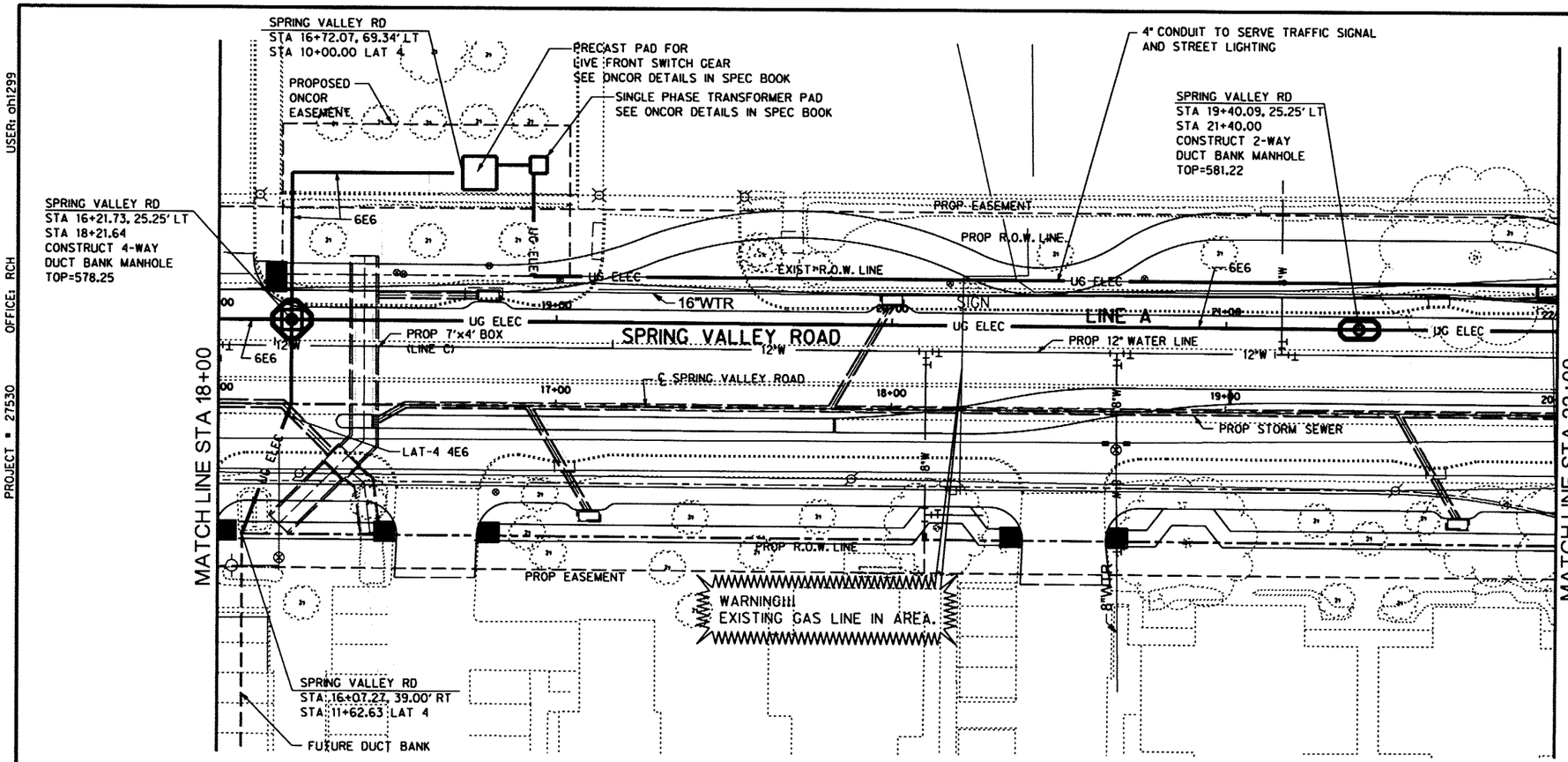
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

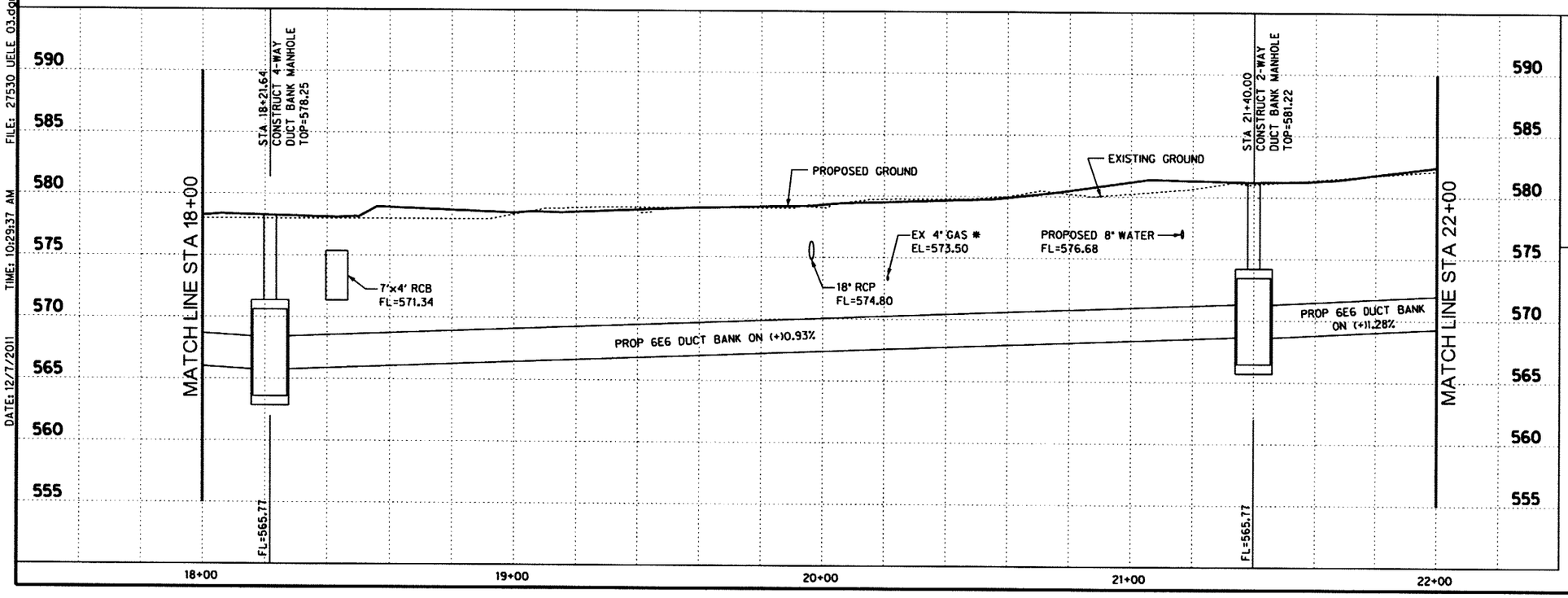
PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UELE 02	ELE-2

SHEET 51 OF 163

RECORD DRAWINGS

USER: ch1299
OFFICE: RCH
PROJECT # 27530
FILE: 27530 UELE 02.dgn
TIME: 10:29:16 AM
DATE: 12/7/2011





N

0 10 20 30 40 60
SCALE IN FEET

* CONTRACTOR TO FIELD VERIFY LOCATION OF GAS LINE COORDINATE WITH ATMOS TO RESOLVE CONFLICTS.

RECORD DOCUMENTS
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc.
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/5/2011 Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

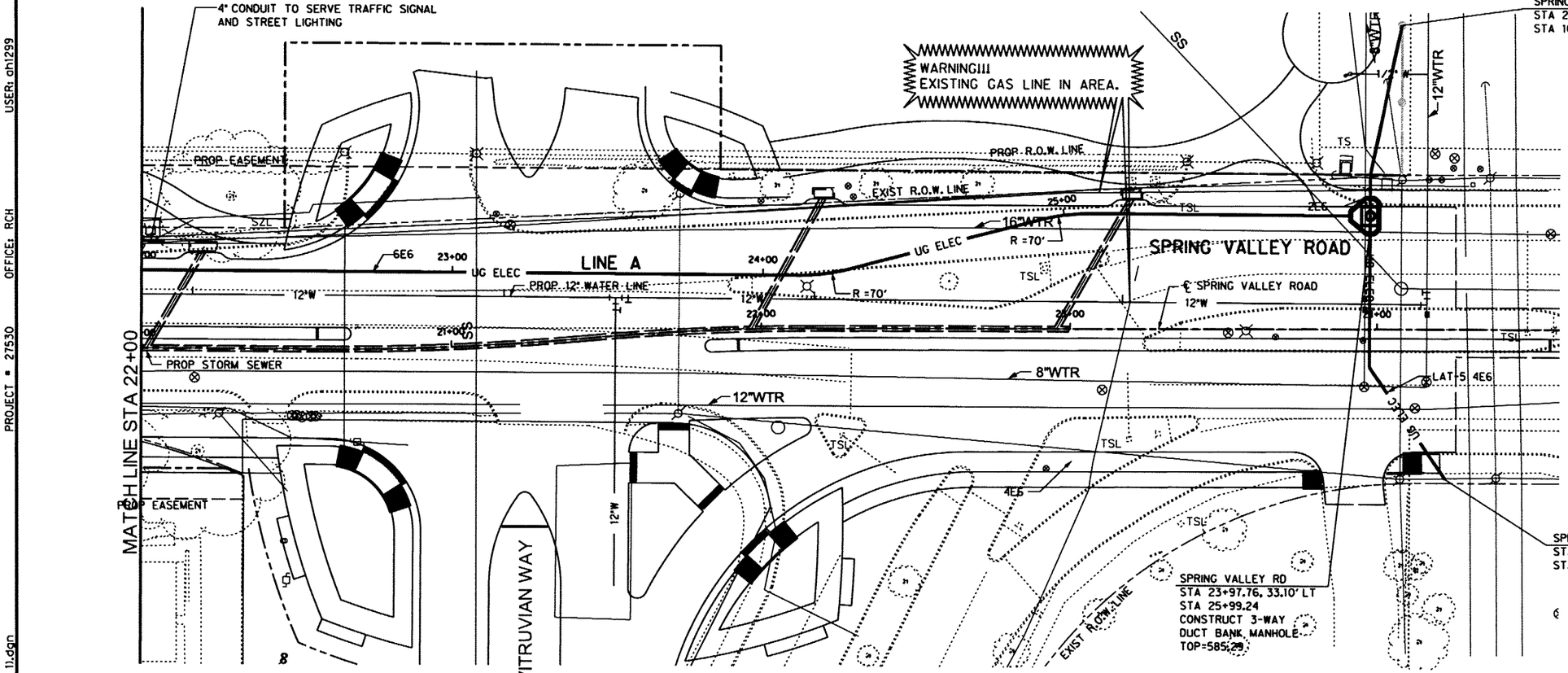
DUCT BANK PLAN AND PROFILE STA 18+00 TO 22+00

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275 TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UELE 03	ELE-3

SHEET 52 OF 163

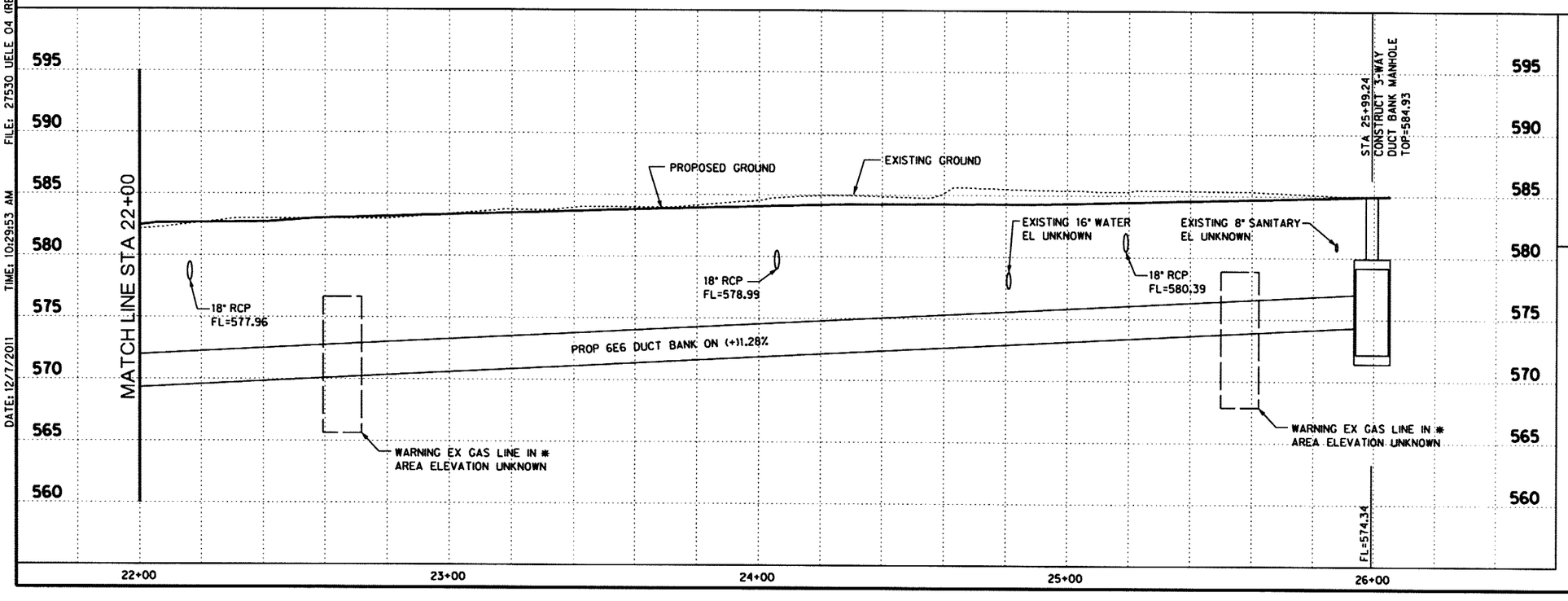
RECORD DRAWINGS



RECORD DOCUMENTS
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc. The Design Professional has not verified the accuracy and / or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result

Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SHEET 53 OF 163



STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011 Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

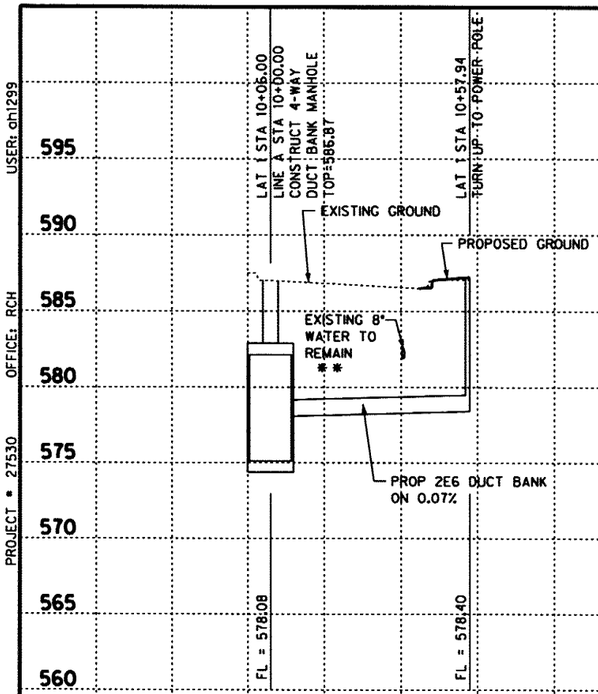
DUCT BANK PLAN AND PROFILE STA 22+00 TO 25+58.15

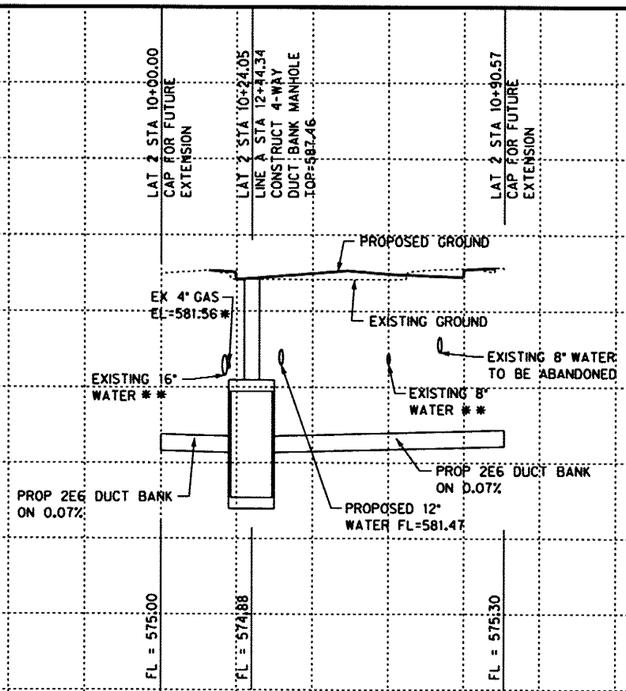
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

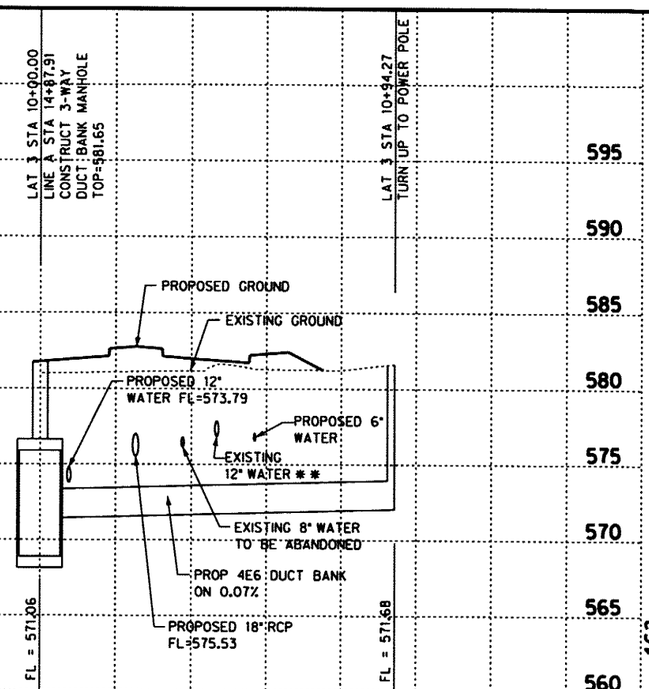
PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UELE 04	ELE-4

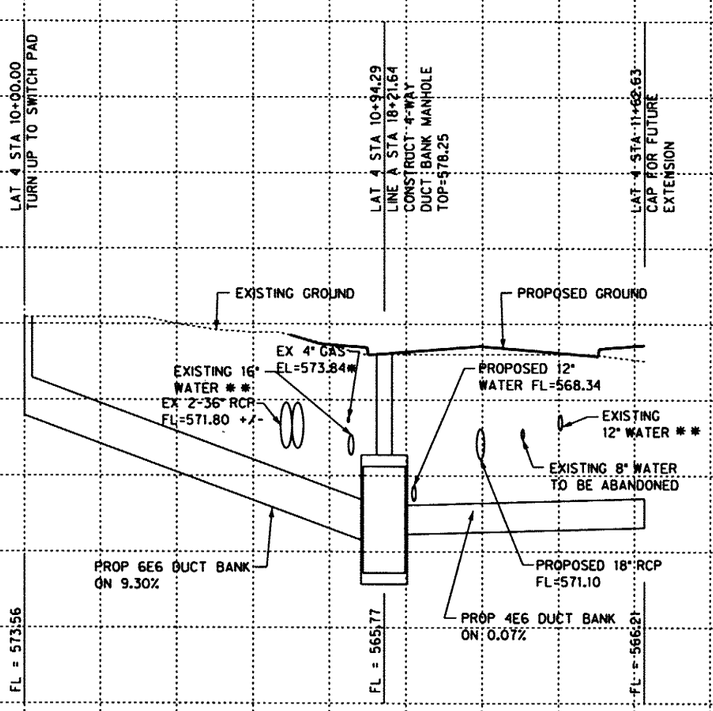
RECORD DRAWINGS

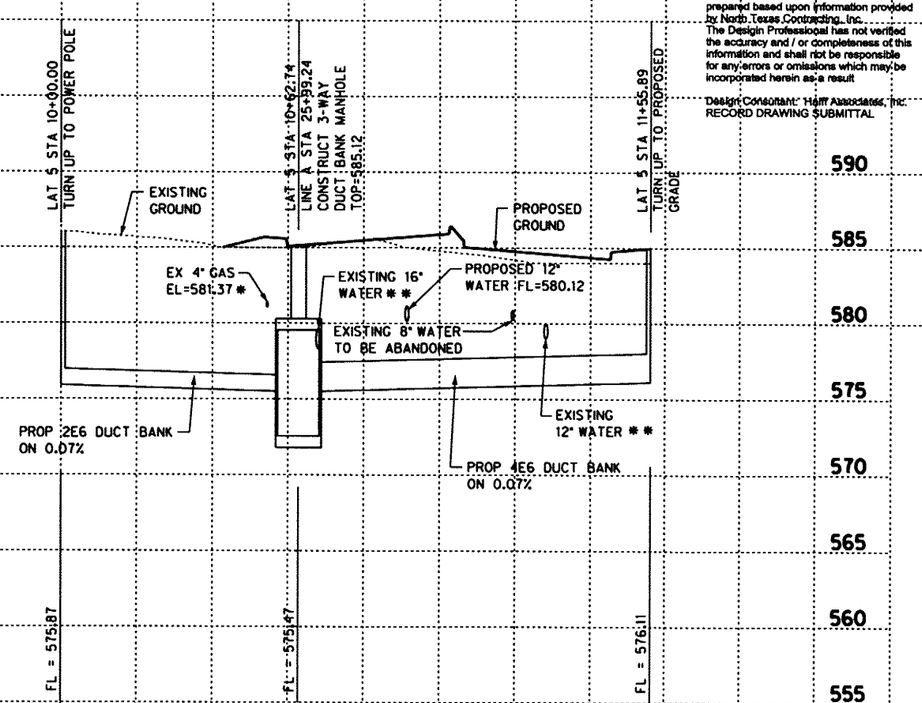
USER: ah1299
OFFICE: RCH
PROJECT # 27530
FILE: 27530 UELE 04 (REV 1).dgn
TIME: 10:29:53 AM
DATE: 12/7/2011











RECORD DOCUMENTS
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc. The Design Professional has not verified the accuracy and / or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result

Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

* CONTRACTOR TO FIELD VERIFY GAS LINE LOCATION AND COORDINATE WITH ATMOS TO RESOLVE CONFLICTS.

** CONTRACTOR TO FIELD VERIFY LOCATION OF WATERLINE AND USE WATERLINE LOWERING SECTION IF NEEDED TO AVOID CONFLICT.

STATE OF TEXAS
M.F. ROMANOWSKI
94305
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant Date 12/6/11

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

DUCT BANK LATERALS LAT 1 TO 5

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 UELE 05	ELE-5

SHEET 54 OF 163

RECORD DRAWINGS

USER: ah1299
OFFICE: RCH
PROJECT # 27530
FILE: 27530 UELE 05 (REV 1).dgn
TIME: 10:30:05 AM
DATE: 12/7/2011

The CONTRACTOR shall notify of the Town of Addison at least one week prior to starting work on this project.

The CONTRACTOR will only be allowed to work on this project during daylight hours (8 am to 5 pm Monday - Friday). Lane closures will only be allowed between the hours of 9 am and 3 pm Monday - Friday.

The CONTRACTOR shall clean up and remove from work area all loose material resulting from the contract operations each day before work is suspended. Any obstructions to existing drainage due to the CONTRACTOR's operations will be removed by the CONTRACTOR as required by the Town at the CONTRACTOR's entire expense.

THE TRAFFIC SIGNAL INSTALLATION CONSISTS OF THE FOLLOWING PRINCIPLE ITEMS:

1. Furnish and install controller cabinet assembly according to Town specifications.
2. Remove and salvage existing traffic signal assemblies.
3. Furnishing and installing signal pole/mast arm assemblies, signal heads, and signal cable.
4. Furnishing and installing conduit, ground boxes.
5. Furnishing and installing VIVDS detection system and signal preemption detectors.
6. Furnishing and placing all concrete and reinforcing steel for the signal pole foundations, and controller foundation.
7. The CONTRACTOR shall also furnish and install all other items not listed above which are needed to provide the complete traffic signal installation as called for in the plans and specifications.

SIGNAL TECHNICIAN

A signal technician from the Town of Addison shall be present when the signals are placed in operation. The CONTRACTOR shall notify Ms. Nancy cline at (972) 450-2871 a minimum of 48 hours in advance of the turn on.

SIGNAL START UP AND TEST PERIOD FOR SIGNALS

Unless directed by the Town, the signal shall be placed in flashing mode on a Tuesday, Wednesday, or Thursday only between 9:00 am and 12:00 pm. Unless directed by the Town, the signal shall be placed in full operation between 9:00 am and 12:00 pm (noon) on a Monday, Tuesday, or Wednesday only. Once the signals have been installed and placed in operation, they shall operate continuously for a minimum of 30 calendar days in a satisfactory manner. Equipment failures during these 30 days will cause the test period to start over.

WIRING AND SIGNAL OPERATIONS

The CONTRACTOR shall be responsible for terminating all field wiring inside the cabinet. Wiring inside the cabinet shall be performed by the CONTRACTOR according to instructions from the Town of Addison and according to the cable termination chart.

EXISTING UTILITIES

The exact location of the underground utilities is not certain. The CONTRACTOR shall contact the Town of Addison and utility companies with utilities in the area for the exact location prior to drilling for foundations and any other work that might interfere with or damage present utilities. Known utilities include town water and sewer lines, TXU electric lines, SBC telecommunication lines, TXU gas lines, and fiber optic lines. Location of some of these utilities can be determined by calling the number 1-800-DIG-TESS. No additional payment will be made for relocation of foundations due to utilities.

Texas state law, article 1436c, makes unlawful the operation of equipment or machines within 10 feet of any overhead electrical line unless danger against contact with high voltage lines has been effectively guarded against pursuant to the provisions in the article. When construction operations requires working near an overhead electrical line, the CONTRACTOR shall contact the owner operator of the overhead electrical line to make adequate arrangements and to take the necessary safety precautions to ensure that all laws, electrical line owner/operator requirements, and standard industry safety practices are met.

ELECTRICAL CONDUCTORS

All electrical conductors for breakaway poles shall be breakaway (Buchannan 65u, Bussman hebw, Littlefuse leb, or equal) in accordance with RID(2). All electrical connections for neutrals shall be breakaway, shall have a white color marking, and shall permanently installed solid neutral (Buchannan 20u, Bussman het, Littlefuse let, or equal). Grounding conductors that share the same conduit, ground box, or structure shall be bonded together at every accessible point in accordance with the NEC.

CONDUIT

Underground conduit for cable shall be schedule 40 PVC. All couplings and connections shall be tight and waterproof. PVC conduit shall be heavy-wall schedule 40, unless otherwise approved by the engineer. All conduit elbows and rigid metal extensions required to be installed on PVC conduit systems will not be paid separately, but will be considered subsidiary to various bid items.

Conduit to be placed under existing pavement shall be placed at a minimum depth of 3 feet below the pavement surface. If it is determined by the engineer that it is impractical to place conduit by jacking or boring, the open trench method may be used, when approved, at no additional expense to the owner. In the event that the open trench method is used, the trench shall be backfilled to a condition acceptable to the Town engineer.

POLE ASSEMBLIES, POLE FOUNDATIONS AND ANCHORS

Critical pole assembly features and dimensions required for this project are shown on the plan detail sheets. Pole shaft/mast arm identification numbers shall be stenciled on pole shafts and mast arms before shipment to insure matching of poles and mast arms during field assembly. Signal pole assemblies shall be powder coated SILVER.

No mast arm poles shall be placed on the foundations prior to seven (7) days following placement of concrete. The dimensions shown on the plans for location of foundations, conduit and other items may be varied to meet local conditions, subject to approval by the Town of Addison.

The CONTRACTOR shall notify Ms. Nancy Cline at (972) 450-2871 at least 48 hours before pacing concrete. Cylinders will be made for testing by a laboratory approved by Town personnel.

TRAFFIC SIGNAL CONTROLLER AND CABINET ASSEMBLY

The CONTRACTOR shall furnish and install an Econolite asc/3-1000 ts2 traffic signal controller and cabinet assembly. This equipment shall be in accordance with town of Addison Special Specification A9004. CONTRACTOR shall be paid according to installation of highway traffic signals.

SIGNAL HEADS

Unless otherwise shown in the plans, all signals shall be mounted vertically. All signal heads shall be covered with burlap or other approved material from the time of installation until the signal is placed in operation. LED signal lamps shall be used for all signal indications and furnished and installed by the CONTRACTOR. All signal heads shall be polycarbonate with polycarbonate back-plates. Pedestrian signal heads shall be aluminum.

GROUND BOXES

CONTRACTOR shall install a 5/8" x 8' copper clad ground rod in a ground box nearest to each signal pole. A ground wire (#8 bare) shall be installed from this ground rod to the base of the pole. Each ground rod shall be electrically bonded to all other ground rods on this premise. The ground wire (#8 bare) shall bond all ground rods back to the electrical service. The cost of the ground rod shall be considered subsidiary to this item.

SIGNING

All new signs shall be furnished and installed be the CONTRACTOR. All new sign sheeting shall be High Intensity Prismatic (HIP). The CONTRACTOR shall verify the specifications and all information to be placed on the Illuminated Street Name Signs ((ILSNs) with the Town of Addison prior to fabrication. The CONTRACTOR shall contact Ms. Nancy Cline at (972) 450-2871 to obtain this information.

SIGNAL PREEMPTION DETECTORS

The CONTRACTOR shall furnish and install an opticom detector system manufactured by Global Traffic Technologies. The CONTRACTOR shall furnish four (4) Type 721 uni-directional opticom detectors, two (2) Type 752 2-channel phase selectors, and opticom detector cable.

WIRING

Extra cable length shall be included in each run to provide adequate slack, as determined by the Town inspector, at each ground box or foundation. No splicing shall be allowed in signal preemption or VIVDS detector cables. No splicing shall be allowed in the traffic signal cable except at pole base.

PAVEMENT MARKINGS

Pavement markings to be installed by others as part of roadway construction project.

VIDEO IMAGING VEHICLE DETECTION SYSTEM (VIVDS)

All equipment required for installation of a Econolite Solo Terra Pro VIVDS, including VIVDS cable, will be furnished and installed by the CONTRACTOR according to TxDOT Special Specification 6266. The CONTRACTOR shall furnish and install adequate number of VIVDS modular units required for four (4) camera inputs. The CONTRACTOR will not be required to supply a computer for VIVDS set-up. If a computer is required for set-up, the CONTRACTOR shall supply and use his/her own computer.

WIRELESS COMMUNICATION

The CONTRACTOR shall furnish and install a Wireless Ethernet Radio Subscriber Unit and CAT 5E Ethernet Cable. This equipment shall be in accordance with the Town of Addison Special Specification A9007.

The CONTRACTOR shall furnish and install a Hardened Ethernet Switch inside the controller cabinet. This equipment shall be in accordance with the Town of Addison Special Specification A9001.

The CONTRACTOR shall furnish and install a Video Server inside the controller cabinet. This equipment shall be in accordance with the Town of Addison Special Specification A9002.

CONTRACTOR'S RESPONSIBILITY FOR THE WORK

The CONTRACTOR shall be responsible for all installations until accepted by the Town as required by the general provisions and requirements. Should "knock downs" occur, the CONTRACTOR shall responsible for all labor to reinstall said equipment at no additional cost to the Town. If new equipment is required, as determined by the Town, the CONTRACTOR shall provide replacement equipment at no additional cost to the Town.

HANDLING OF TRAFFIC

Roads and streets shall be kept open to traffic at all times. The CONTRACTOR shall, unless otherwise directed by the Town, arrange the work in the roadway so as to close only one lane of the roadway at a time. All construction operations shall be conducted to provide the least possible interference to traffic as provided in the specifications and/or as directed by the Town.

The CONTRACTOR shall arrange the installation of signals, poles, and conduit so as to permit the continuous movement of the traffic in both directions at all times. A pre-construction conference including Town staff shall outline intersection construction phases. A traffic control plan (TCP) for this project shall be as detailed on standard sheets WZ (BTS-1) - 03 and WZ (BTS-2) - 03. All construction signs shall be mounted on fixed supports (4" x 4" wood posts) unless otherwise directed by the Town.

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
S.P. BOOTH
94903
LICENSED
PROFESSIONAL ENGINEER

S.P. Booth ,P.E. 12/8/2011
Signature of Registrant Date

RECORD DRAWINGS

NO.	REVISION	BY	DATE

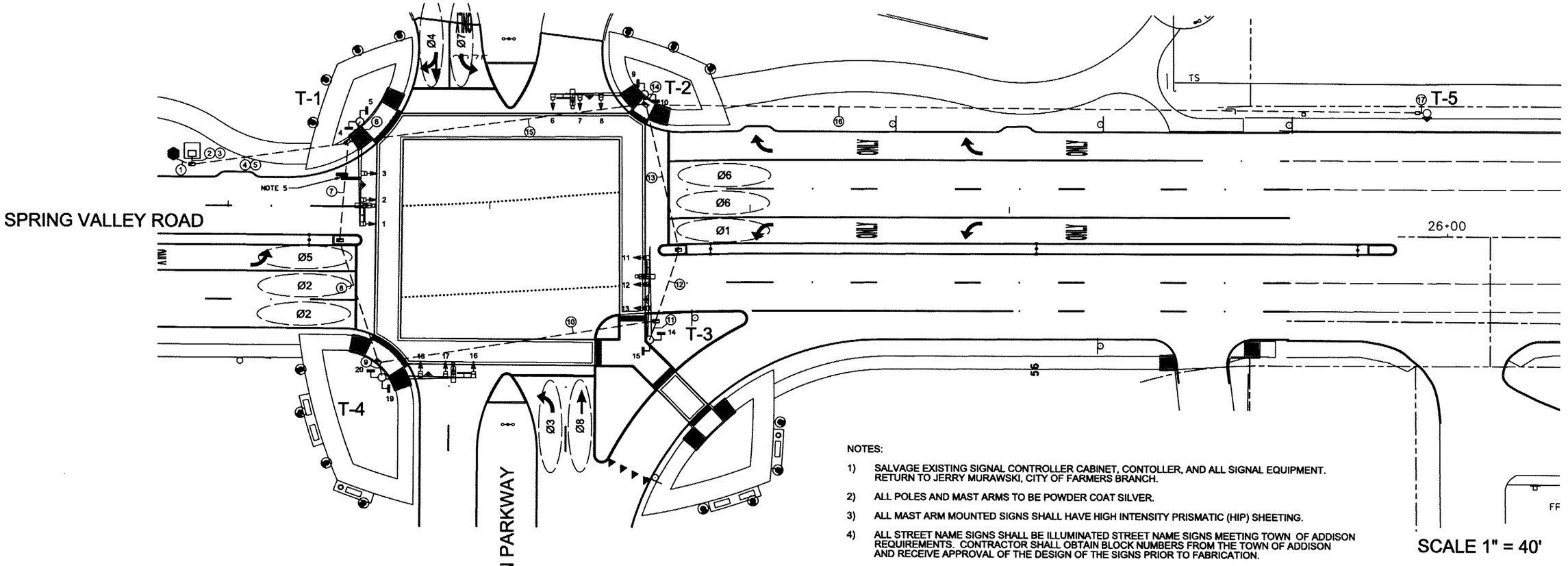
Addison TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC SIGNAL GENERAL NOTES
SPRING VALLEY RD AT VITRUVIAN PKWY

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010		TS-1



SCALE 1" = 40'

NOTES:

1) SALVAGE EXISTING SIGNAL CONTROLLER CABINET, CONTOLLER, AND ALL SIGNAL EQUIPMENT. RETURN TO JERRY MURAWSKI, CITY OF FARMERS BRANCH.
2) ALL POLES AND MAST ARMS TO BE POWDER COAT SILVER.
3) ALL MAST ARM MOUNTED SIGNS SHALL HAVE HIGH INTENSITY PRISMATIC (HIP) SHEETING.
4) ALL STREET NAME SIGNS SHALL BE ILLUMINATED STREET NAME SIGNS MEETING TOWN OF ADDISON REQUIREMENTS. CONTRACTOR SHALL OBTAIN BLOCK NUMBERS FROM THE TOWN OF ADDISON AND RECEIVE APPROVAL OF THE DESIGN OF THE SIGNS PRIOR TO FABRICATION.
5) FURNISH AND INSTALL A 10' POLE EXTENSION ON T-1 SIGNAL ARM. CONTRACTOR FURNISH AND INSTALL A WIRELESS ETHERNET SUBSCRIBER ACCORDING TO TOWN OF ADDISON SPECIAL SPECIFICATION A9007 ON THE POLE EXTENSION. CONTRACTOR SHALL AIM THE ETHERNET SUBSCRIBER UNIT AS DIRECTED BY THE TOWN ENGINEER. WIRELESS RADIO TO BE MOUNTED BY OPTICOM HEAD ON T-1.
6) CONTRACTOR SHALL FURNISH AND INSTALL THE VIDEO SERVER AND HARDENED ETHERNET SWITCH INSIDE THE TRAFFIC SIGNAL CONTROLLER CABINET.
7) THE VIDEO SERVER SHALL BE INSTALLED BETWEEN THE VIVDS PROCESSOR AND HARDENED ETHERNET SWITCH.
8) MOUNT OPTICOM DETECTOR ON PED POLE AT T-5. DETECTOR WILL ACTIVATE EB PREEMPTION (POLE T-1).

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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS · S.P. BOOTH · 94903 · LICENSED PROFESSIONAL ENGINEER

Signature of Registrant ,P.E. Date

ELECTRICAL SERVICE DATA

ELECTRICAL SERVICE DESCRIPTION SEE ED(4)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO. / SIZE	MAIN CIRCUIT BREAKER POLE / AMP	TWO-POLE CONTACTOR AMPS	PANELBD / LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE / AMPS	KVA LOAD
TY D (120/240) 100 (NS) SS (E) PS (U)	1 1/2"	3 / #6	2P / 100	30	100	T.S. LUM 1 LUM 2 LUM 3	1P / 50 2P / 15 2P / 15 2P / 15	< 7.1

LEGEND OF SYMBOLS

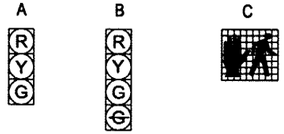
	VIDEO DETECTION ZONES
	SIGNAL POLE/MAST ARM SET UP
2	SIGNAL HEAD NUMBERS
	CONTROLLER CABINET
	GROUND BOX TYPE D (LG)
	GROUND BOX TYPE E (SM)
	LUMINAIRE
*2	PHASE NUMBERS
T-2	POLE NUMBERS
(22)	CONDUIT RUN NUMBERS
R.O.W.	RIGHT OF WAY LINES
	VIVDS CAMERA
	ELECTRICAL SERVICE
	OPTICOM
	MAST ARM MOUNTED SIGN
	WIRELESS ETHERNET SUBSCRIBER

SIGNAL POLE CHART

POLE NUMBER	T-1					T-2					T-3					T-4					T-5
MAST ARM LENGTH	40'					36'					36'					36'					PED
FOUNDATION TYPE	36-A					36-A					36-A					36-A					24-A
WITH LUMINAIRES	NO					NO					NO					NO					NO
MAST ARM SIGNS	R10-12					R10-12					R10-12					R10-12					NONE
SIZE OF LENS	12"																				
SIGNAL TYPE	B	A	A	C	C	B	A	A	C	C	B	A	A	C	C	B	A	A	C	C	N/A
SIGNAL FACE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	N/A
LED SIGNAL INDICATIONS	R	R	R	DW	DW	R	R	R	DW	DW	R	R	R	DW	DW	R	R	R	DW	DW	OPTICOM ONLY
	Y	Y	Y	W	W	Y	Y	Y	W	W	Y	Y	Y	W	W	Y	Y	Y	W	W	
	G	G	G			G	G	G			G	G	G			G	G	G			
	~~GY~~					~~GY~~					~~GY~~					~~GY~~					

ALL SIGNAL HEADS SHALL HAVE BLACK ALUMINUM BACK PLATES AS STATED IN THE GENERAL NOTES.
LEFT-TURN INDICATIONS WILL CONSIST OF 4 SECTION HEADS WITH BI-MODAL YELLOW AND GREEN ARROWS.
ALL MAST ARMS WILL HAVE LED ILLUMINATED STREET NAME SIGNS.

SIGNAL HEAD TYPES



V3 V4LT* PED (WITH COUNTDOWN)

*WITH BI-MODAL YELLOW AND GREEN ARROWS.

NO.	REVISION	BY	DATE
2	ADD OPTICOM DETECTOR AND PED POLE AT T-5	SPB	12/6/2010
1	SIGNAL LAYOUT	SPB	8/26/10

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

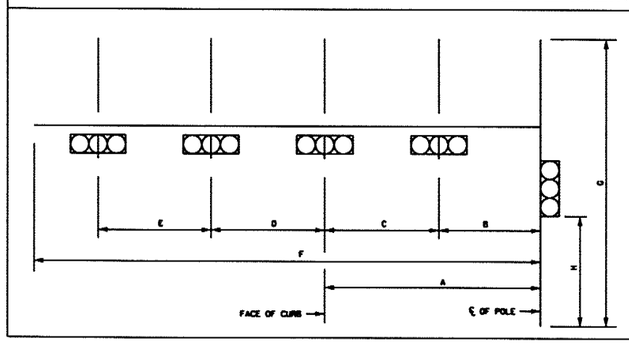
TRAFFIC SIGNAL LAYOUT SPRING VALLEY AT VITRUVIAN

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010		TS-2

RECORD DRAWINGS

SIGNAL HEAD AND POLE PLACEMENT



	T-1	T-2	T-3	T-4	T-5
A	13'	13'	10'	12'	7'
B	20'	24'	12'	21'	N/A
C	10'	11'	9'	12'	N/A
D	10'	N/A	12'	N/A	N/A
E	N/A	N/A	N/A	N/A	N/A
F	40'	36'	36'	36'	PED
G	30'	30'	30'	30'	PED
H	N/A	N/A	N/A	N/A	N/A

CABLE TERMINATION CHART

CONDUCTOR NO.	TYPICAL APPLICATION	CONDUCTOR COLOR	CABLE 1	CABLE 2	CABLE 3	CABLE 4	CABLE 5
			20 CNDR	20 CNDR	20 CNDR	20 CNDR	N/A
			FROM CNTRL TO T-1 TERMINAL BLOCK	FROM CNTRL TO T-2 TERMINAL BLOCK	FROM CNTRL TO T-3 TERMINAL BLOCK	FROM CNTRL TO T-4 TERMINAL BLOCK	FROM CNTRL TO T-5 TERMINAL BLOCK
1	RED THRU PHASE	RED	SH 1, 2, 3 Ø6 R	SH 6, 7, 8 Ø8 R	SH 11, 12, 13 Ø2 R	SH 16, 17, 18 Ø4 R	
2	YLW THRU PHASE	ORANGE	SH 1, 2, 3 Ø6 Y	SH 6, 7, 8 Ø8 Y	SH 11, 12, 13 Ø2 Y	SH 16, 17, 18 Ø4 Y	
3	GRN THRU PHASE	GREEN	SH 1, 2, 3 Ø6 G	SH 6, 7, 8 Ø8 G	SH 11, 12, 13 Ø2 G	SH 16, 17, 18 Ø4 G	
4	LT RED BALL OL	RED/BLACK TR	SPARE	SPARE	SPARE	SPARE	
5	LT YLW BALL OL	ORANGE/BLACK TR	SPARE	SPARE	SPARE	SPARE	
6	LT GRN BALL OL	GREEN/BLACK TR	SPARE	SPARE	SPARE	SPARE	
7	SPARE	WHITE/BLACK TR	SPARE	SPARE	SPARE	SPARE	
8	PED CALL	BLUE/BLACK TR	Ø6	Ø6	Ø2	Ø2	
9	WALK	BLUE/WHITE TR	SH 5 Ø6 W	SH 9 Ø6 W	SH 15 Ø2 W	SH 19 Ø2 W	
10	DON'T WALK	BLACK/WHITE TR	SH 5 Ø6 DW	SH 9 Ø6 DW	SH 15 Ø2 DW	SH 19 Ø2 DW	
11	LT YLW ARROW	BLACK	SH 1 Ø1 YLT	SH 6 Ø3 YLT	SH 11 Ø5 YLT	SH 16 Ø7 YLT	
12	WALK	GREEN/WHITE TR	SH 4 Ø4 W	SH 10 Ø8 W	SH 14 Ø8 W	SH 20 Ø4 W	
13	DON'T WALK	RED/WHITE TR	SH 4 Ø4 DW	SH 10 Ø8 DW	SH 14 Ø8 DW	SH 20 Ø4 DW	
14	LT GRN ARROW	BLUE	SH 1 Ø1 GLT	SH 6 Ø3 GLT	SH 11 Ø5 GLT	SH 16 Ø7 GLT	
15	NEUTRAL	WHITE	SIG COMMON	SIG COMMON	SIG COMMON	SIG COMMON	
16	PED CALL	BLACK/RED TR	Ø4	Ø8	Ø8	Ø4	
17		WHITE/RED TR	SPARE	SPARE	SPARE	SPARE	
18		ORANGE/RED TR	SPARE	SPARE	SPARE	SPARE	
19		BLUE/RED TR	SPARE	SPARE	SPARE	SPARE	
20		RED/GREEN TR	SPARE	SPARE	SPARE	SPARE	

OPTICOM ONLY

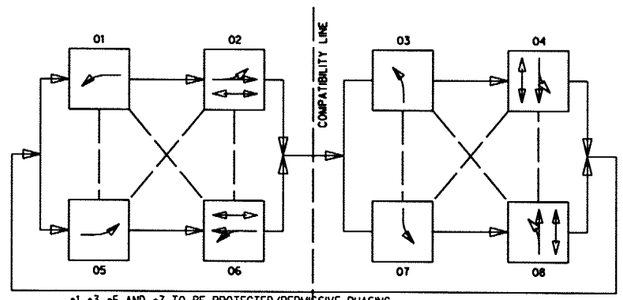
TABLE ABOVE SHOWS WIRING TO TERMINAL BLOCK AT POLE BASE. WIRING TO SIGNAL HEADS SHALL CONSIST OF SEPARATE RUNS TO EACH SIGNAL HEAD, 5 COND FOR 3 SECTION HEADS, AND 7 COND FOR 4 OR 5 SECTION HEADS. THESE QUANTITIES ARE CONSIDERED SUBSIDIARY TO THE POLE AND MAST ARM ASSEMBLIES.

CONDUIT RUNS

RUN NO.	CONDUIT SIZE	CONDUIT LENGTH	INSTALL TYPE	ELECTRICAL CONDUCTORS		SIGNAL CABLES #14 AWG			VIVDS DETECTOR CABLE	ILSN CABLE 5 CNDR #14 AWG	OPTICOM DETECTOR CABLE	CAT 5E ETHERNET CABLE
				XHHW #6	GROUND #6	7 CNDR	16 CNDR	20 CNDR				
1	2"	7'	T	2	1							
2	5'	4"	T	2	1			4		4		
3	5'	4"	T						4		5	1
4	60'	4"	T		1			4		4		
5	60'	4"	T		1				4		5	1
6	10'	3"	T		1			1	1	1	1	1
7	40'	4"	B		1			2	2	2	2	
8	50'	4"	B		1			2	2	2	2	
9	8'	3"	T		1			1	1	1	1	
10	108'	4"	T		1			1	1	1	1	
11	10'	3"	T		1			1	1	1	1	
12	30'	4"	B		1							
13	58'	4"	B		1							
14	7'	3"	T		1			1	1	1	1	
15	115'	4"	B		1			1	1	1	2	
16	300'	2"	T								1	
17	10'	2"	T								1	

T = TRENCH B = BORE

PROPOSED SIGNAL PHASING



•1, •3, •5 AND •7 TO BE PROTECTED/PERMISSIVE PHASING

RECORD DOCUMENTS
December, 2011
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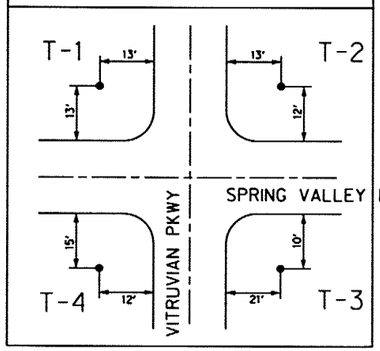
Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

SIGNAL POLE LOCATIONS



DISTANCE TO CURB MEASURED ALONG PERPENDICULAR TO CL

STATE OF TEXAS
S.P. BOOTH
94903
LICENSED
PROFESSIONAL ENGINEER

S.P. Booth ,P.E. 12/8/2011
Signature of Registrant Date

DISTANCES ARE FOR GUIDANCE ONLY.
EXACT LOCATION OF SIGNAL POLES SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE TOWN ENGINEER PRIOR TO DRILLING

NO.	REVISION	BY	DATE
2	ADDITION OF OPTICOM AT T-5	SPB	12/6/2010
1	PAHSING AND WIRING CHANGES	SPB	8/26/10

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC SIGNAL DESIGN TABLES
SPRING VALLEY RD AT VITRUVIAN PKWY

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010		TS-3

SHEET 57 OF 163

RECORD DRAWINGS

TRAFFIC CONTROL NARRATIVE

PHASE 1A

1. REMOVE EXISTING MEDIANS NEAR THE INTERSECTION OF SPRING VALLEY AND VITRUVIAN WAY.
2. REMOVE ANY EXISTING ITEMS WITHIN MEDIAN LIMITS AT VITRUVIAN INTERSECTION.
3. CONSTRUCT TEMPORARY ASPHALT PAVEMENT IN PLACE OF MEDIANS.

PHASE 1B

1. SHIFT TRAFFIC TO ONE LANE EACH DIRECTION CONFIGURATION ON SOUTH SIDE OF EXISTING SPRING VALLEY ROAD.
2. REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT AND INSTALL STOP SIGNS IN EACH DIRECTION AT VITRUVIAN INTERSECTION.
3. CONSTRUCT PROPOSED ELECTRICAL DUCT BANK ON NORTH SIDE OF SPRING VALLEY ROAD TO MAXIMUM LIMITS WHILE MAINTAINING A MINIMUM OF 1-11' LANE IN EACH DIRECTION.

PHASE 2

1. SHIFT TRAFFIC TO ONE LANE EACH DIRECTION CONFIGURATION ON NORTH SIDE OF EXISTING SPRING VALLEY ROAD. CONSTRUCT REMAINING SECTIONS OF ELECTRICAL DUCT BANK ON SPRING VALLEY ROAD PRIOR TO ANY OTHER CONSTRUCTION IN PHASE 2.
2. AFTER SPRING VALLEY ELECTRICAL DUCT BANK IS IN PLACE, ONCOR WILL REQUIRE 2 MONTHS TO SHIFT SERVICE FROM THE EXISTING OVERHEAD LINE TO THE NEW DUCT BANK. DURING THIS TIME, ALL OTHER PHASE 2 CONSTRUCTION CAN BE COMPLETED.
3. ONCOR MUST HAVE ALL SERVICE LINES RELOCATED TO THE NEW SPRING VALLEY ROAD DUCT BANK AND THE EXISTING UTILITY POLES REMOVED PRIOR TO BEGINNING PHASE 3 CONSTRUCTION.
4. IF EXISTING UTILITY POLES ARE STILL IN PLACE DURING PHASE 2 PAVING ACTIVITIES, THE CONTRACTOR WILL BLOCK OUT PAVEMENT AROUND EXISTING POLES AND COMPLETE PAVING WHEN POLES HAVE BEEN REMOVED.
5. SHIFT VITRUVIAN WAY TRAFFIC TO ONE LANE EACH DIRECTION CONFIGURATION ON THE EXISTING EAST SIDE LANES.
6. CONSTRUCT ALL REMAINING UTILITIES TO MAXIMUM LIMITS WHILE MAINTAINING A MINIMUM OF 1-11' LANE IN ALL DIRECTIONS.
7. CONSTRUCT PROPOSED EAST BOUND LANES OF SPRING VALLEY ROAD, AND ALL VITRUVIAN WAY LANES TO LIMITS SHOWN.

PHASE 3A

1. ALL ONCOR WORK ON SPRING VALLEY MUST BE COMPLETED PRIOR TO BEGINNING PHASE 3 CONSRUCTION.
2. SHIFT ALL VITRUVIAN WAY TRAFFIC TO NEW WEST SIDE PAVEMENT, ONE LANE EACH DIRECTION.
3. SHIFT SPRING VALLEY/VITRUVIAN INTERSECTION FROM EXISTING LOCATION TO ALIGN WITH PROPOSED LOCATION.
4. CONSTRUCT REMAINING SECTION OF PROPOSED SPRING VALLEY EAST BOUND LANES.
5. CONSTRUCT TEMPORARY ACCESS TO LEMMONS PROPERTY ON VITRUVIAN WAY.
6. CONSTRUCT REMAINING PROPOSED NORTH BOUND LANES OF VITRUVIAN WAY EXCEPT LEMMONS TEMPORARY ACCESS.

PHASE 3B

1. SHIFT SPRING VALLEY ROAD TRAFFIC TO 1 LANE EACH DIRECTION CONFIGURATION ON NEW SOUTH SIDE PAVEMENT.
2. COMPLETE ALL REMAINING UTILITY WORK ON THE PROJECT IN THIS PHASE.
3. CONSTRUCT PROPOSED WEST BOUND LANES ON SPRING VALLEY ROAD.
4. CONSTRUCT REMAINING PORTION OF PROPOSED NORTH BOUND LANES ON VITRUVIAN WAY.
5. SHIFT ALL TRAFFIC TO FINAL CONFIGURATION WHEN COMPLETE.

NOTE: 1. CONTRACTOR SHALL PHASE CONSTRUCTION AROUND EXISTING DRIVEWAYS TO MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES IN EACH PHASE.

2. ALL TRAFFIC CONTROL MEASURES SHALL COMPLY WITH TEXAS MUTCD & TOWN OF ADDISON WORK ZONE SAFETY SPECIFICATIONS.

STATE OF TEXAS
M.F. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant, P.E. Date 12/8/2011

RECORD DRAWINGS

NO.	REVISION	BY	DATE

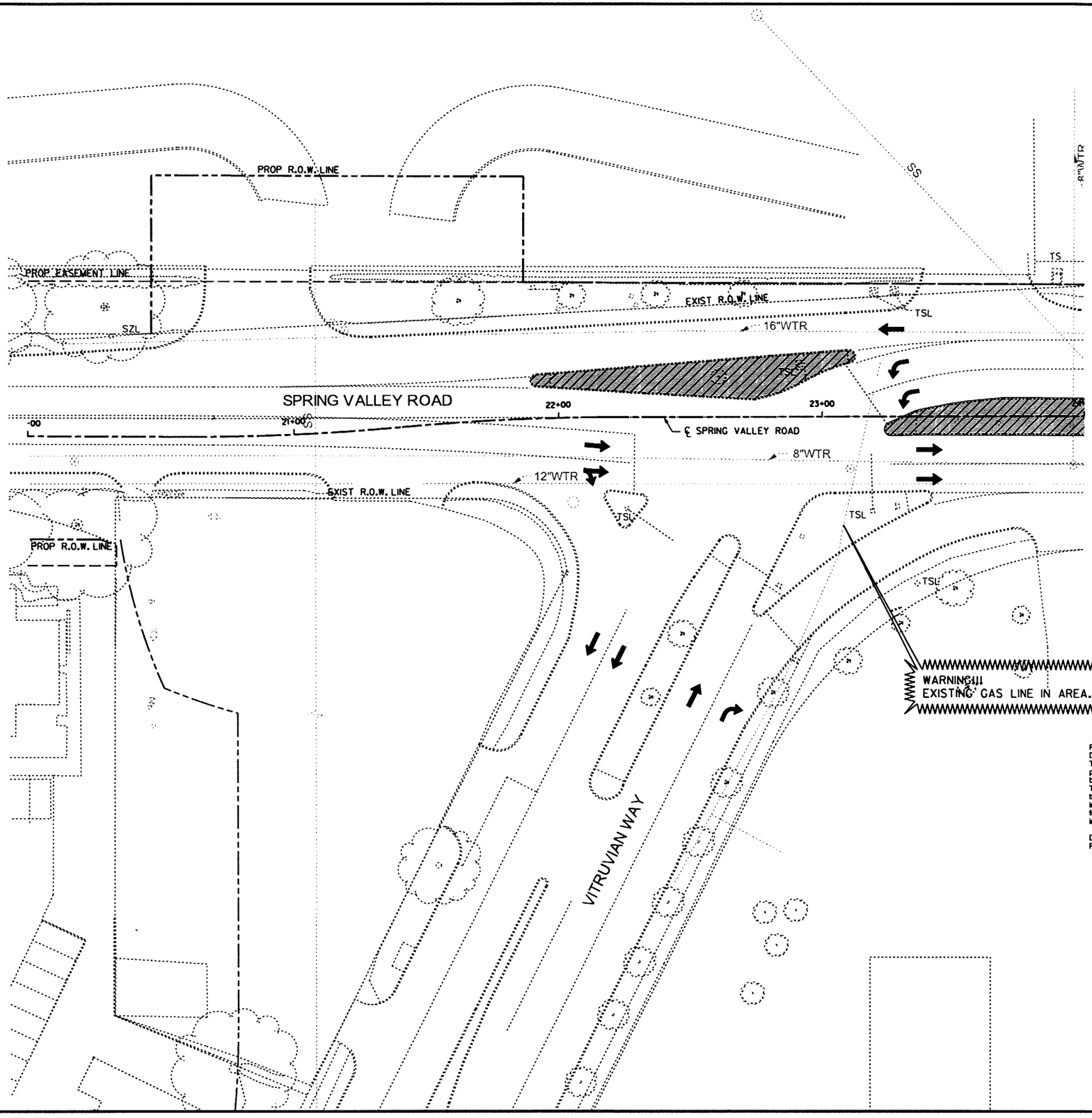
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL NARRATIVE

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCPN 01	TCP-00



SCALE IN FEET

N

TRAFFIC CONTROL LEGEND:

- TEMPORARY 8" HMAC PAVEMENT
- PAVEMENT CONSTRUCTED IN THIS PHASE
- PAVEMENT CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT HMAC WIDENING PREVIOUS PHASE
- TRAFFIC FLOW DIRECTION
- CONSTRUCTION SIGN
- PLASTIC DRUM CHANNELIZING DEVICE
- VERTICAL PANEL WITH TWO WAY TRAFFIC SIGN ON BOTH SIDES
- VERTICAL PANEL (VP)
- TYPE III BARRICADE
- STORM BUILT THIS PHASE
- STORM BUILT PREVIOUS PHASE
- 12"W — WATER BUILT THIS PHASE
- 12"W — WATER BUILT PREVIOUS PHASE
- 8" SS — SANITARY BUILT THIS PHASE
- 8" SS — SANITARY BUILT PREVIOUS PHASE
- UG ELEC — DUCT BANK BUILT THIS PHASE
- UG ELEC — DUCT BANK BUILT PREVIOUS PHASE
- OH ELEC — OVERHEAD ELECT. BUILT THIS PHASE
- OH ELEC — OVERHEAD ELECT. BUILT PREVIOUS PHASE
- (SW) REMOVABLE 4" SOLID WHITE
- (BW) REMOVABLE 4" BROKEN WHITE
- (DW) REMOVABLE 4" DOTTED WHITE
- (ST) REMOVABLE 24" STOP BAR
- (SY) REMOVABLE 4" SOLID YELLOW
- (X) EXISTING / PREVIOUS PAV MARKINGS

STATE OF TEXAS
M.E. ROMANOWSKI
54306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/8/2011

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 1A

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 01-01-01	TCP-1

SHEET 59 OF 163

RECORD DRAWINGS

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PROJECT # 27530
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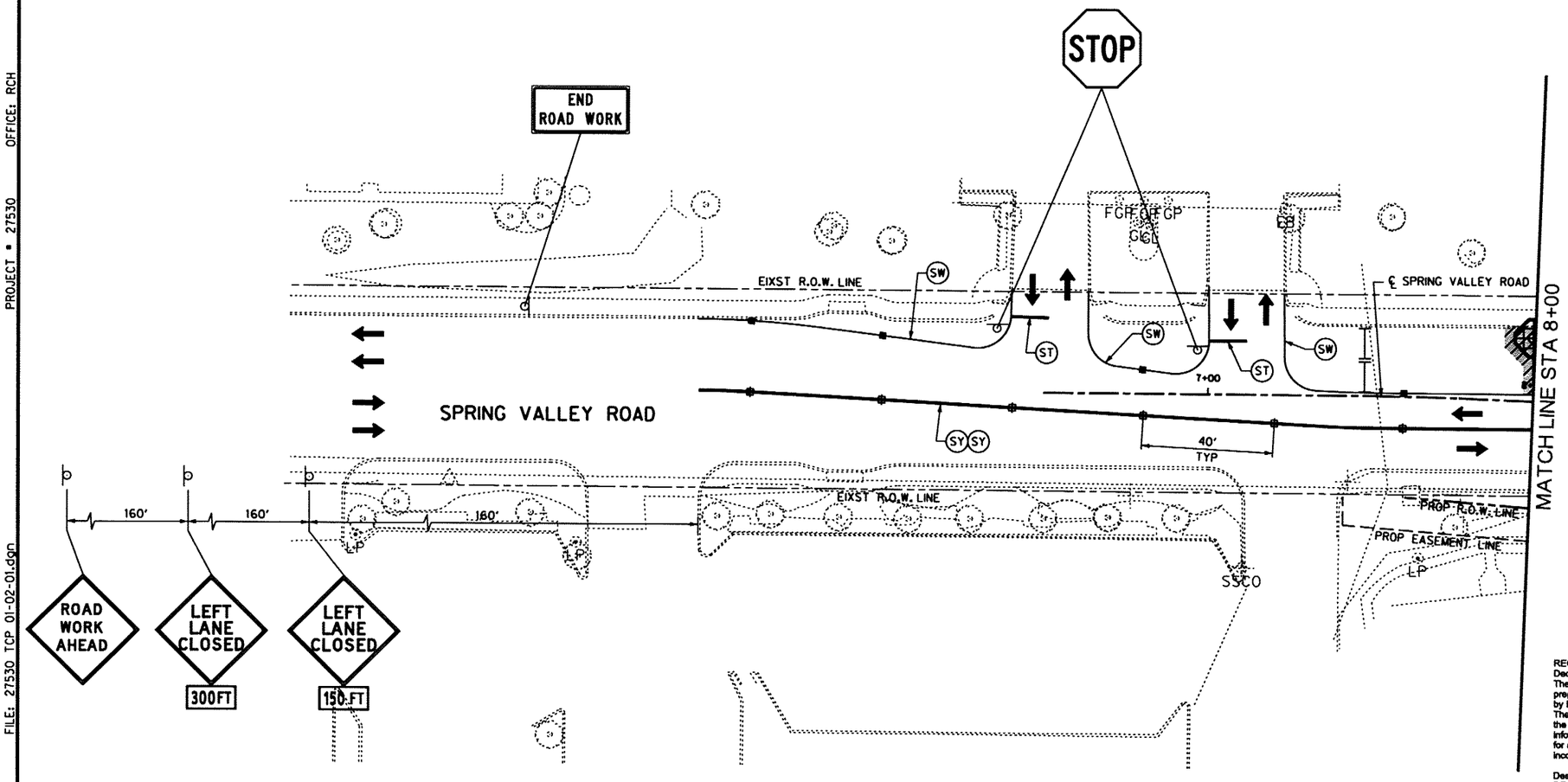
DATE: 12/7/2011



SCALE IN FEET

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TRAFFIC CONTROL LEGEND:

- TEMPORARY 8" HMAC PAVEMENT
- PAVEMENT CONSTRUCTED IN THIS PHASE
- PAVEMENT CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT HMAC WIDENING PREVIOUS PHASE
- TRAFFIC FLOW DIRECTION
- CONSTRUCTION SIGN
- PLASTIC DRUM CHANNELIZING DEVICE
- VERTICAL PANEL WITH TWO WAY TRAFFIC SIGN ON BOTH SIDES
- VERTICAL PANEL (VP)
- TYPE III BARRICADE
- STORM BUILT THIS PHASE
- STORM BUILT PREVIOUS PHASE
- 12"W — WATER BUILT THIS PHASE
- 12"W — WATER BUILT PREVIOUS PHASE
- 8" SS — SANITARY BUILT THIS PHASE
- 8" SS — SANITARY BUILT PREVIOUS PHASE
- UG ELEC — DUCT BANK BUILT THIS PHASE
- UG ELEC — DUCT BANK BUILT PREVIOUS PHASE
- OH ELEC — OVERHEAD ELECT. BUILT THIS PHASE
- OH ELEC — OVERHEAD ELECT. BUILT PREVIOUS PHASE
- (SW) REMOVABLE 4" SOLID WHITE
- (BW) REMOVABLE 4" BROKEN WHITE
- (DW) REMOVABLE 4" DOTTED WHITE
- (ST) REMOVABLE 24" STOP BAR
- (SY) REMOVABLE 4" SOLID YELLOW
- (X) EXISTING / PREVIOUS PAV MARKINGS

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant — P.E. — Date 12/8/2011

SHEET 60 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 1B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 01-02-01	TCP-02

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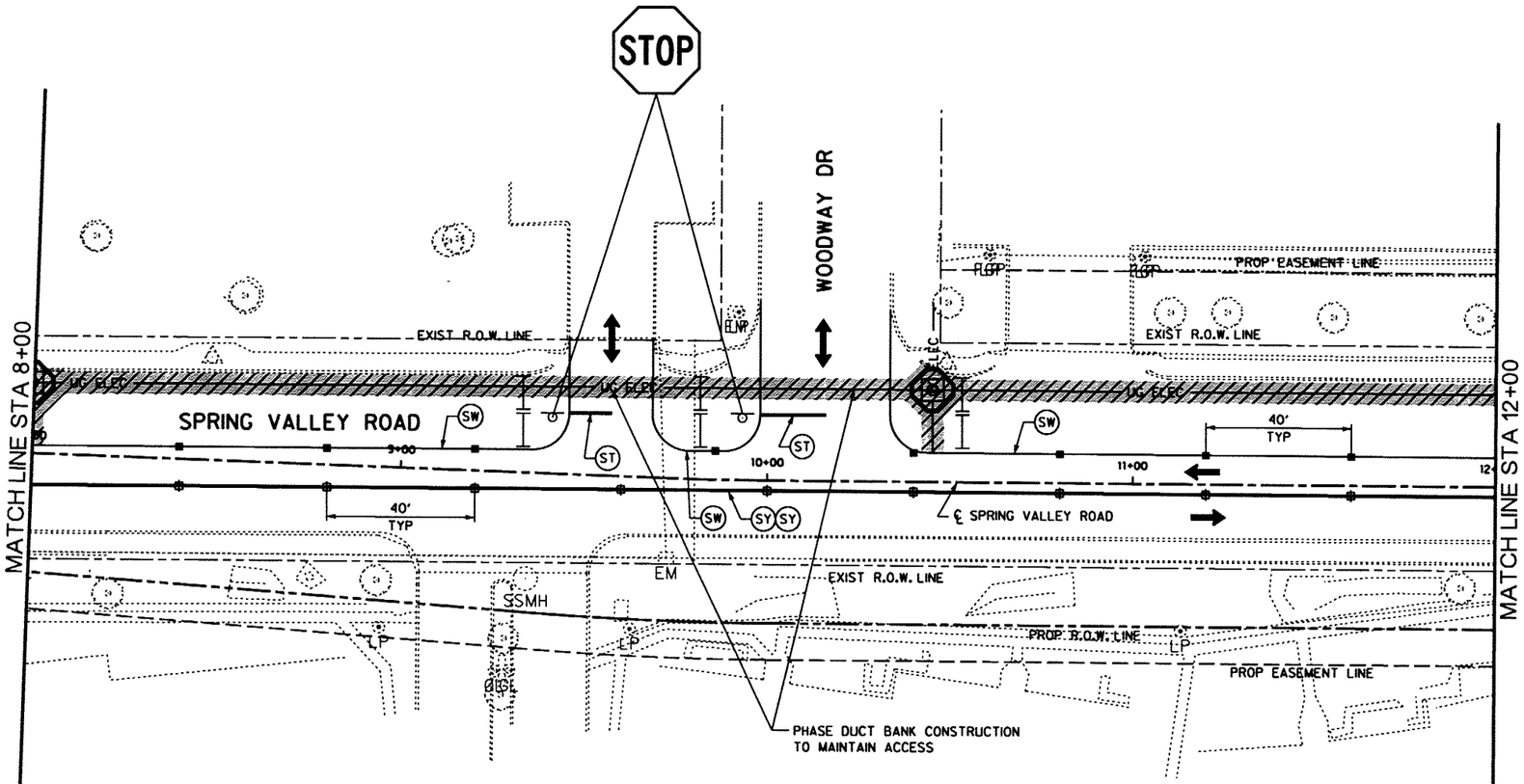

SCALE IN FEET

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TRAFFIC CONTROL LEGEND:

- TEMPORARY 8" HMAC PAVEMENT
- PAVEMENT CONSTRUCTED IN THIS PHASE
- PAVEMENT CONSTRUCTED IN PREVIOUS PHASE
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- 12"W WATER BUILT THIS PHASE
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- 8" SS SANITARY BUILT THIS PHASE
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- UG ELEC DUCT BANK BUILT THIS PHASE
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/8/2011
Signature of Registrant Date

SHEET 61 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 1B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
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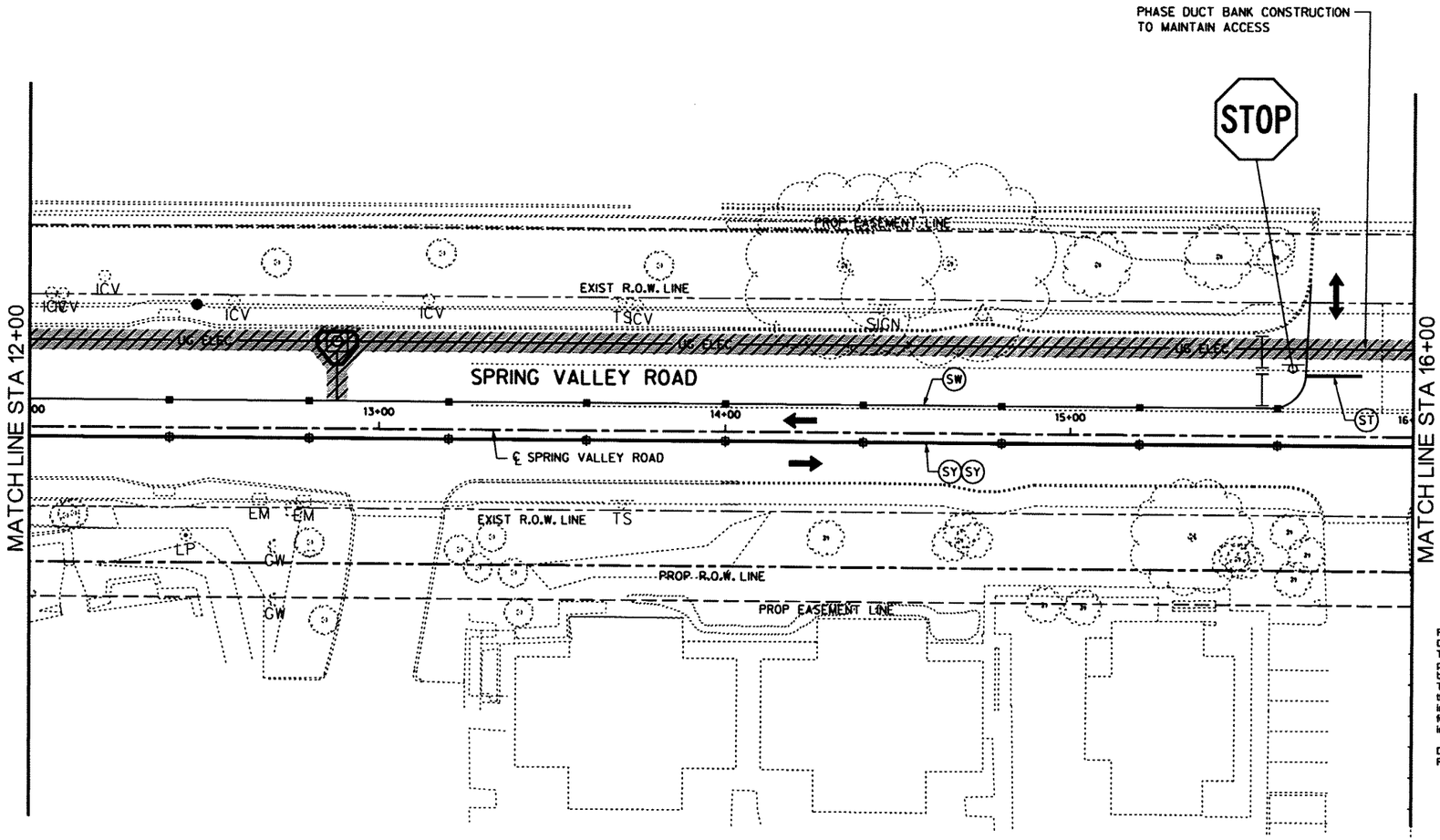

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SCALE IN FEET

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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
84706
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011 Date

SHEET 62 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 1B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
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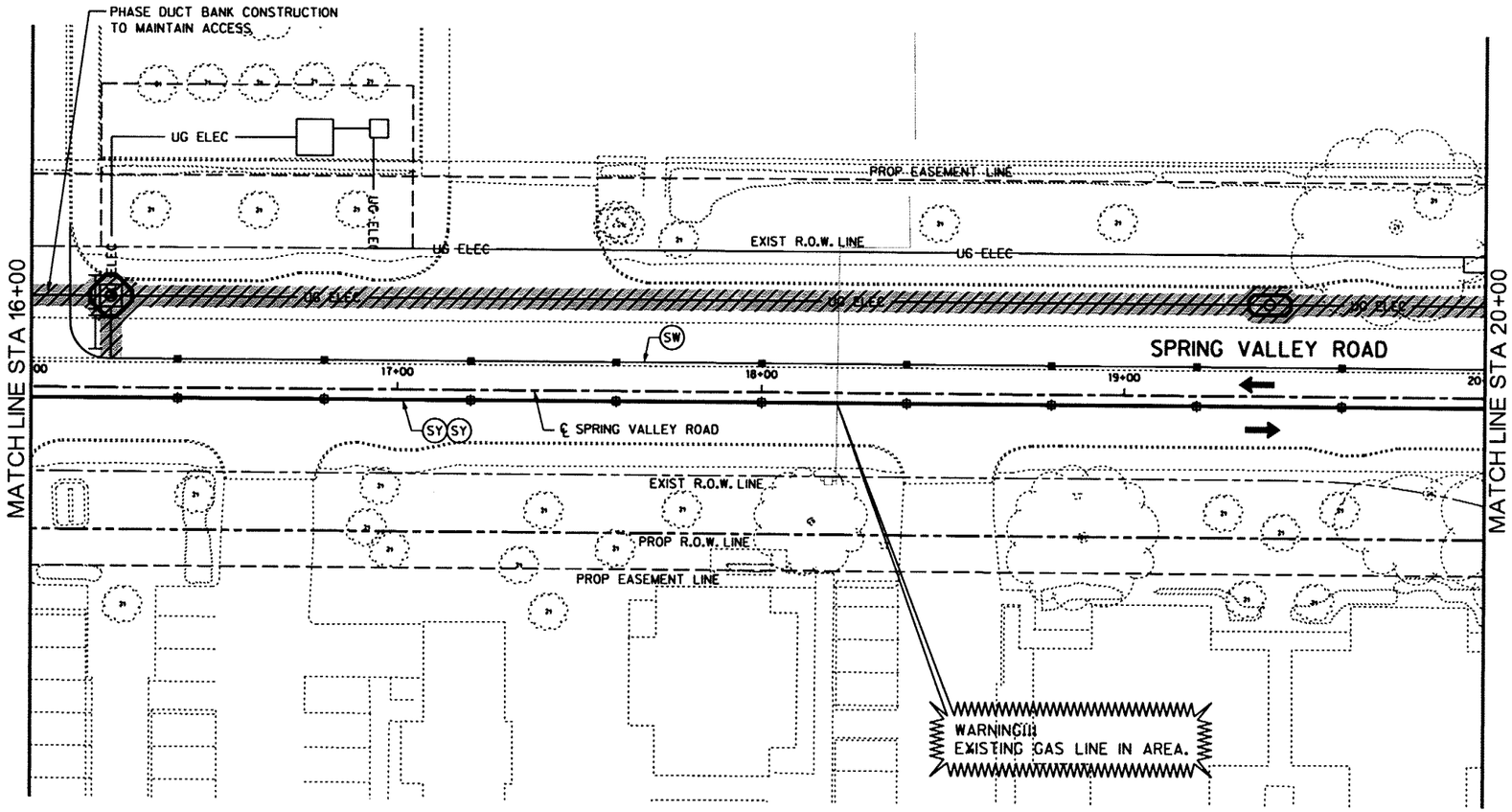

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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/6/2011

SHEET 63 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 1B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 01-02-03	TCP-05

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PROJECT # 27530 OFFICE: RCH
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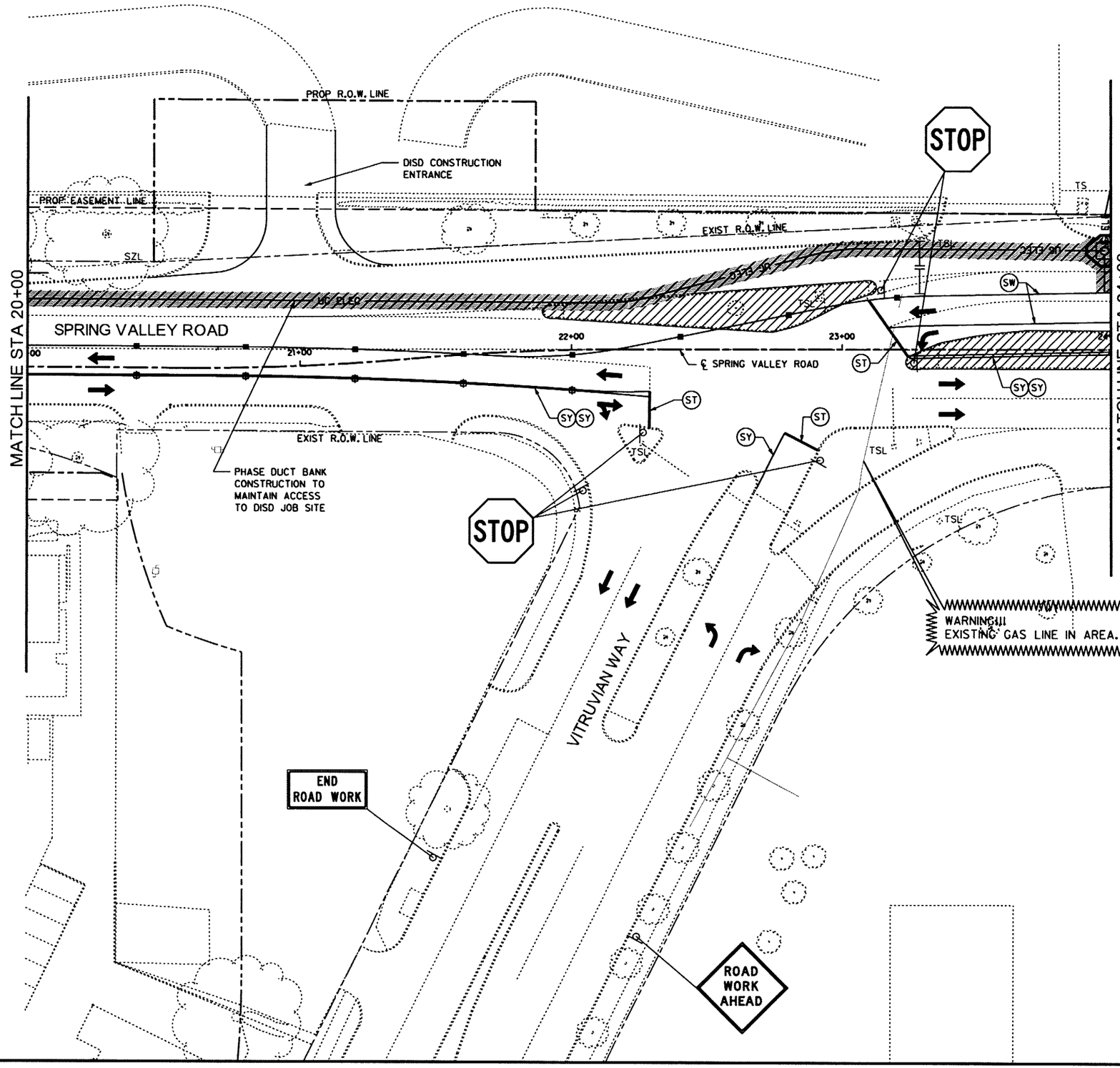

SCALE IN FEET

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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant 12/8/2011 Date

SHEET 64 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 1B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
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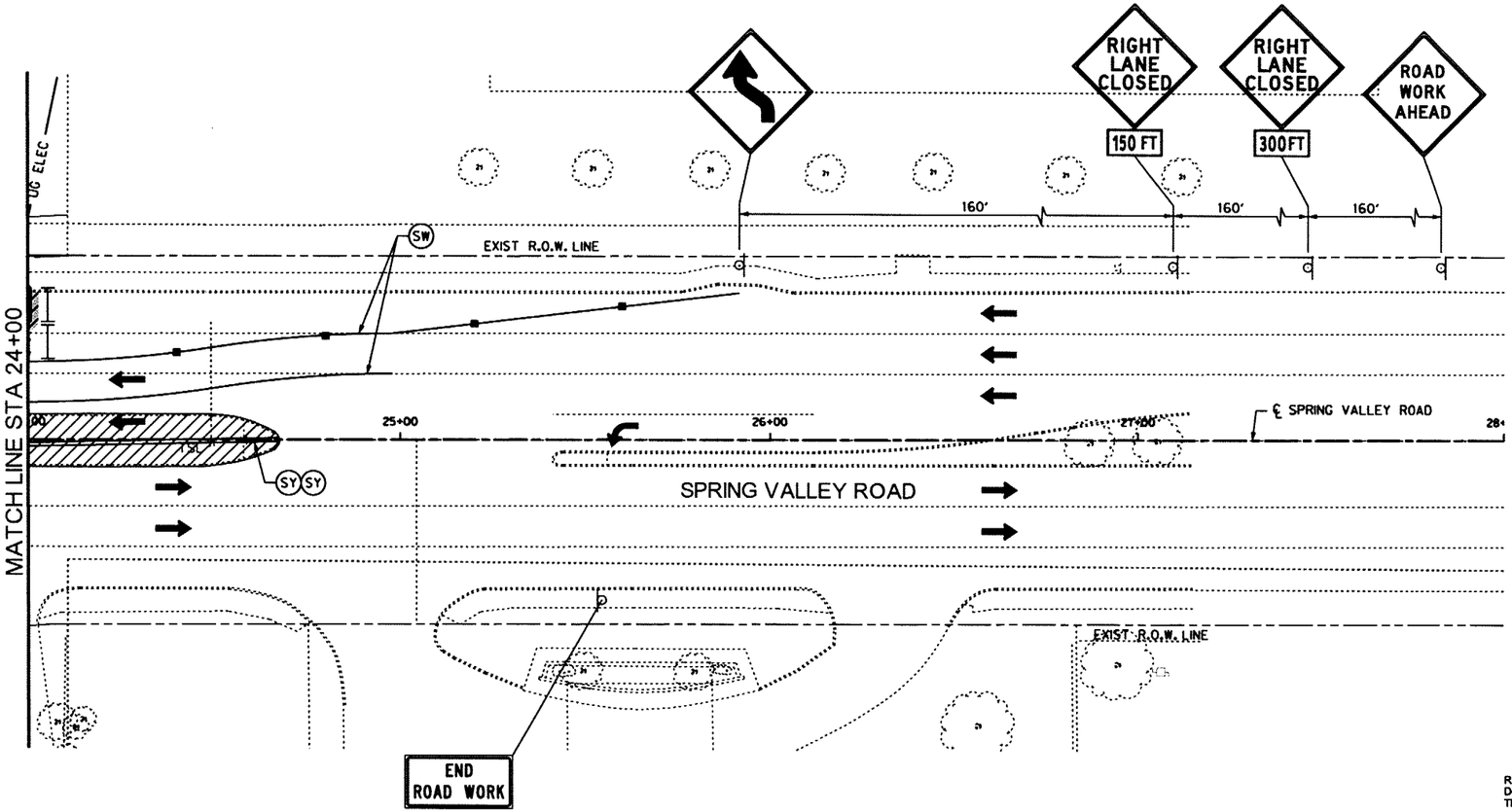

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TRAFFIC CONTROL LEGEND:

- TEMPORARY 8" HMAC PAVEMENT
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RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
96306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/6/2011

SHEET 65 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 1B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 01-02-05	TCP-07

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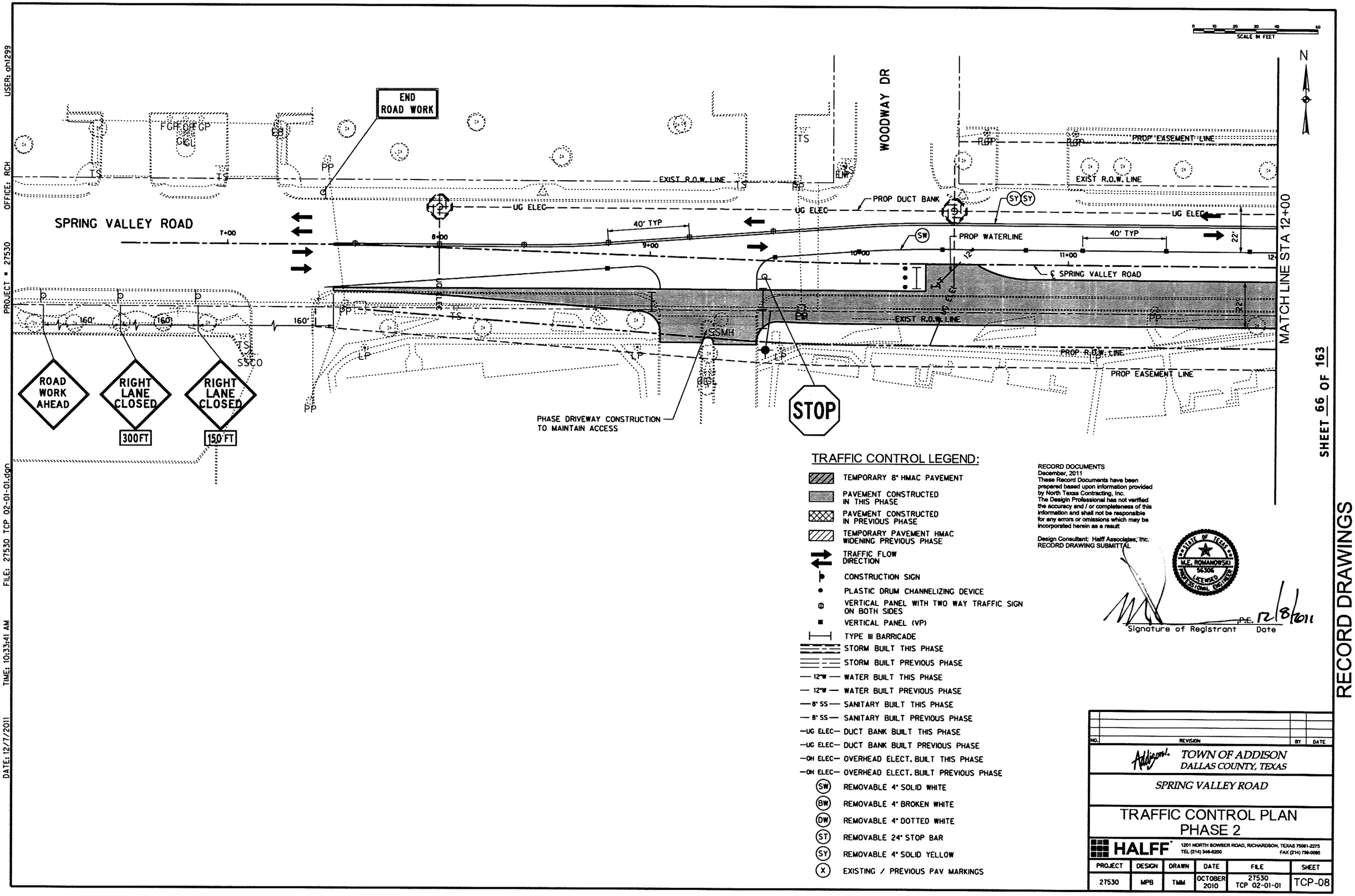

TRAFFIC CONTROL LEGEND:

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- UG ELEC DUCT BANK BUILT THIS PHASE
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94506
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011 Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 2

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 02-01-01	TCP-08

SHEET 66 OF 163

RECORD DRAWINGS

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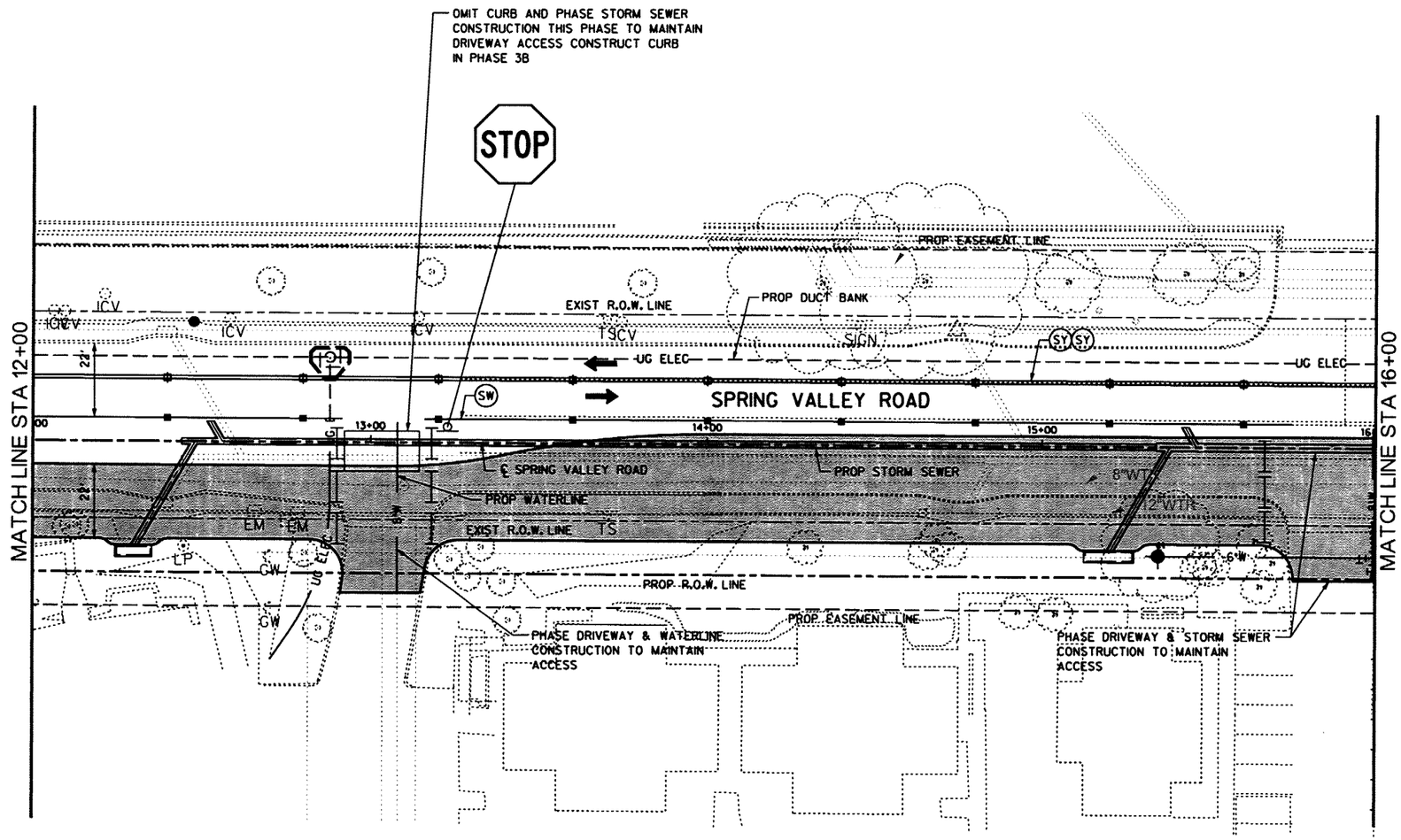

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SCALE IN FEET

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TRAFFIC CONTROL LEGEND:

- TEMPORARY 8" HMAC PAVEMENT
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/8/2011

SHEET 67 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 2

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
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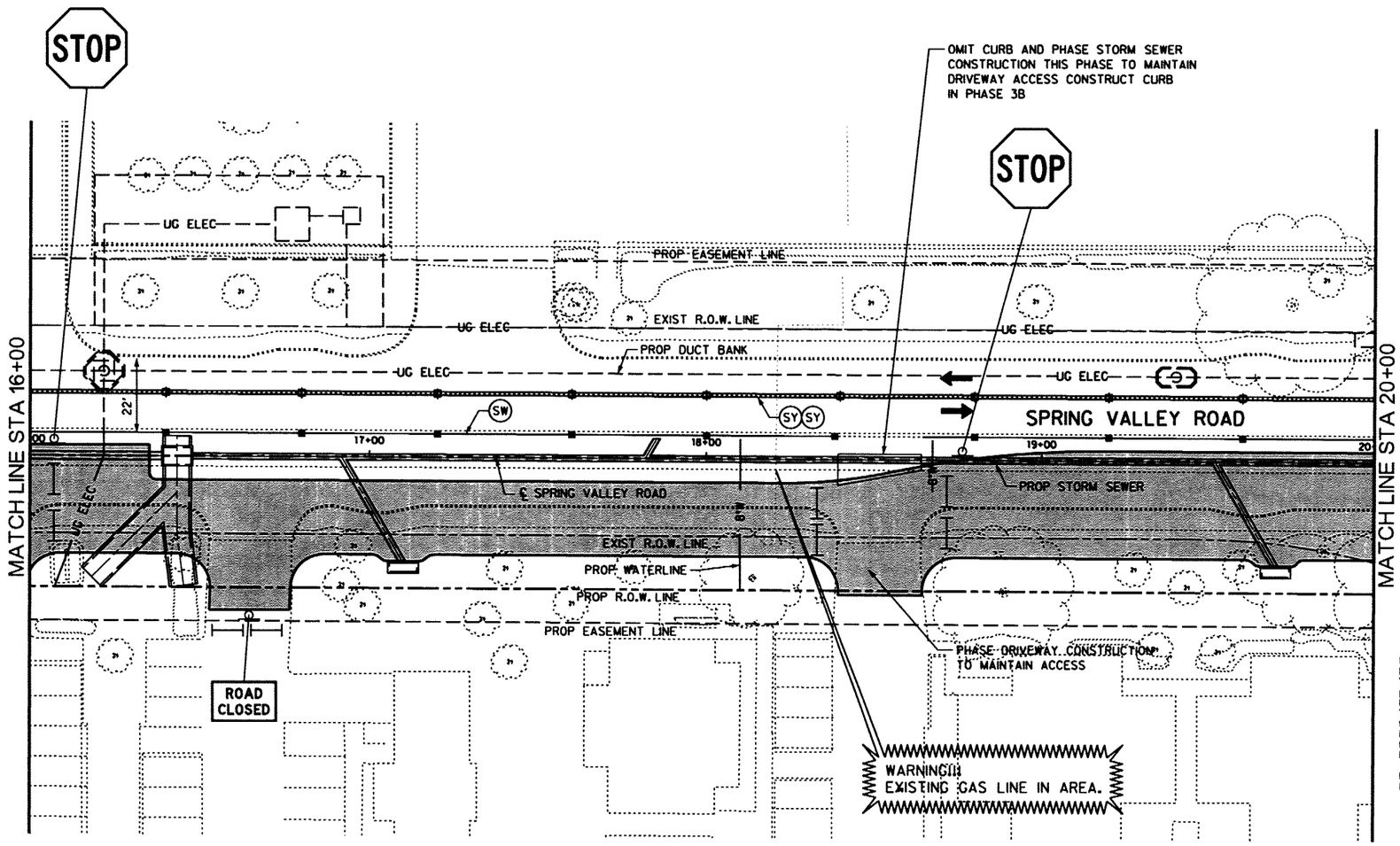

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STATE OF TEXAS — M.E. ROMANOWSKI — 94306 — LICENSED PROFESSIONAL ENGINEER

Signature of Registrant — P.E. — Date 12/8/2011

SHEET 68 OF 163

RECORD DRAWINGS

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TOWN OF ADDISON
DALLAS COUNTY, TEXAS

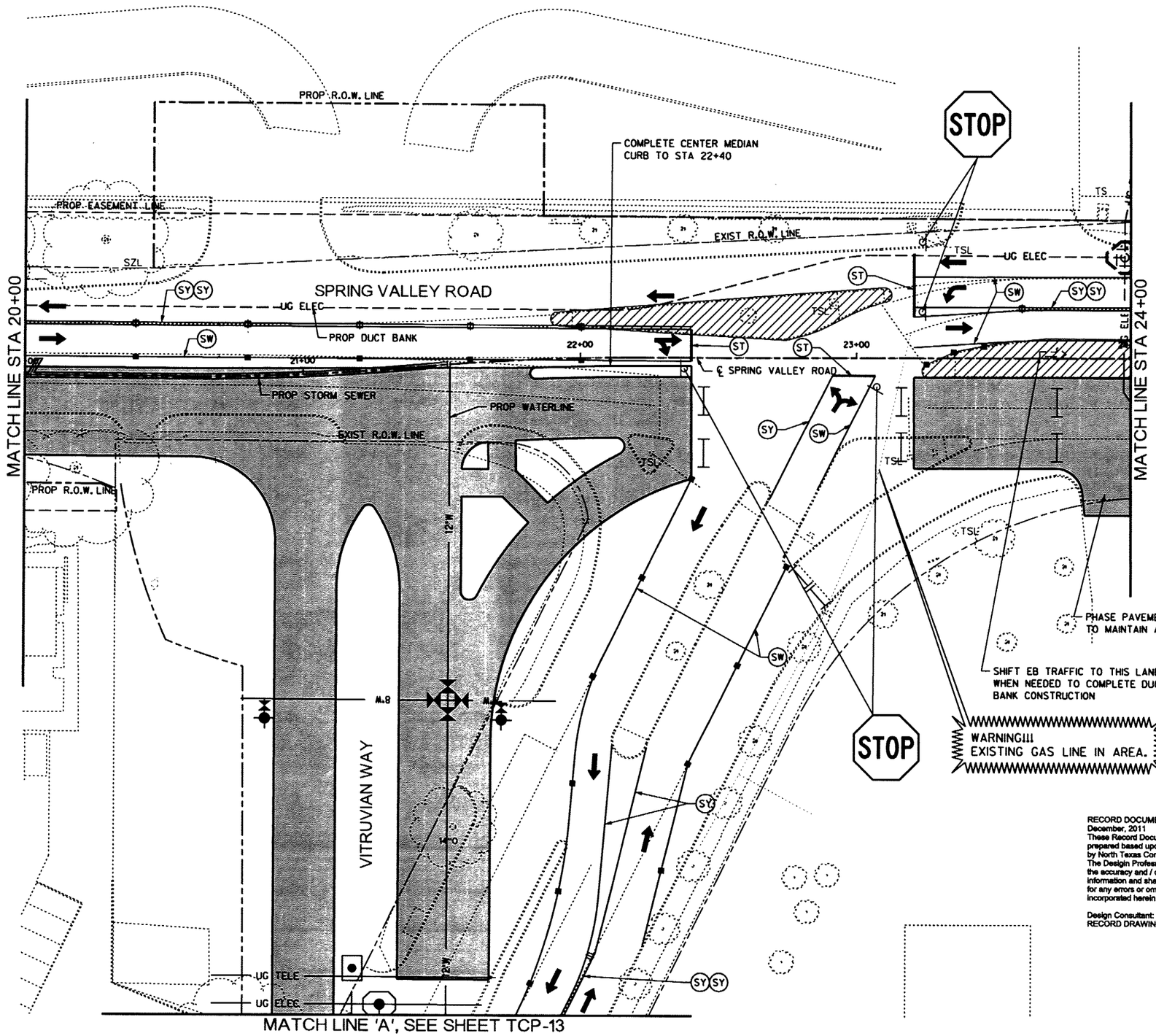
SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 2

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 02-01-03	TCP-10

DATE: 12/7/2011 TIME: 10:34:08 AM FILE: 27530 TCP 02-01-03.dgn PROJECT # 27530 OFFICE: RCH USER: ah1299



SCALE IN FEET

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TRAFFIC CONTROL LEGEND:

- TEMPORARY 8" HMAC PAVEMENT
- PAVEMENT CONSTRUCTED IN THIS PHASE
- PAVEMENT CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT HMAC WIDENING PREVIOUS PHASE
- TRAFFIC FLOW DIRECTION
- CONSTRUCTION SIGN
- PLASTIC DRUM CHANNELIZING DEVICE
- VERTICAL PANEL WITH TWO WAY TRAFFIC SIGN ON BOTH SIDES
- VERTICAL PANEL (VP)
- TYPE III BARRICADE
- STORM BUILT THIS PHASE
- STORM BUILT PREVIOUS PHASE
- —12"W— WATER BUILT THIS PHASE
- —12"W— WATER BUILT PREVIOUS PHASE
- —8" SS— SANITARY BUILT THIS PHASE
- —8" SS— SANITARY BUILT PREVIOUS PHASE
- —UG ELEC— DUCT BANK BUILT THIS PHASE
- —UG ELEC— DUCT BANK BUILT PREVIOUS PHASE
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- (DW) REMOVABLE 4" DOTTED WHITE
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- (SY) REMOVABLE 4" SOLID YELLOW
- (X) EXISTING / PREVIOUS PAV MARKINGS

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/8/2011

RECORD DOCUMENTS
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc.
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

NO.	REVISION	BY	DATE

Addison. TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

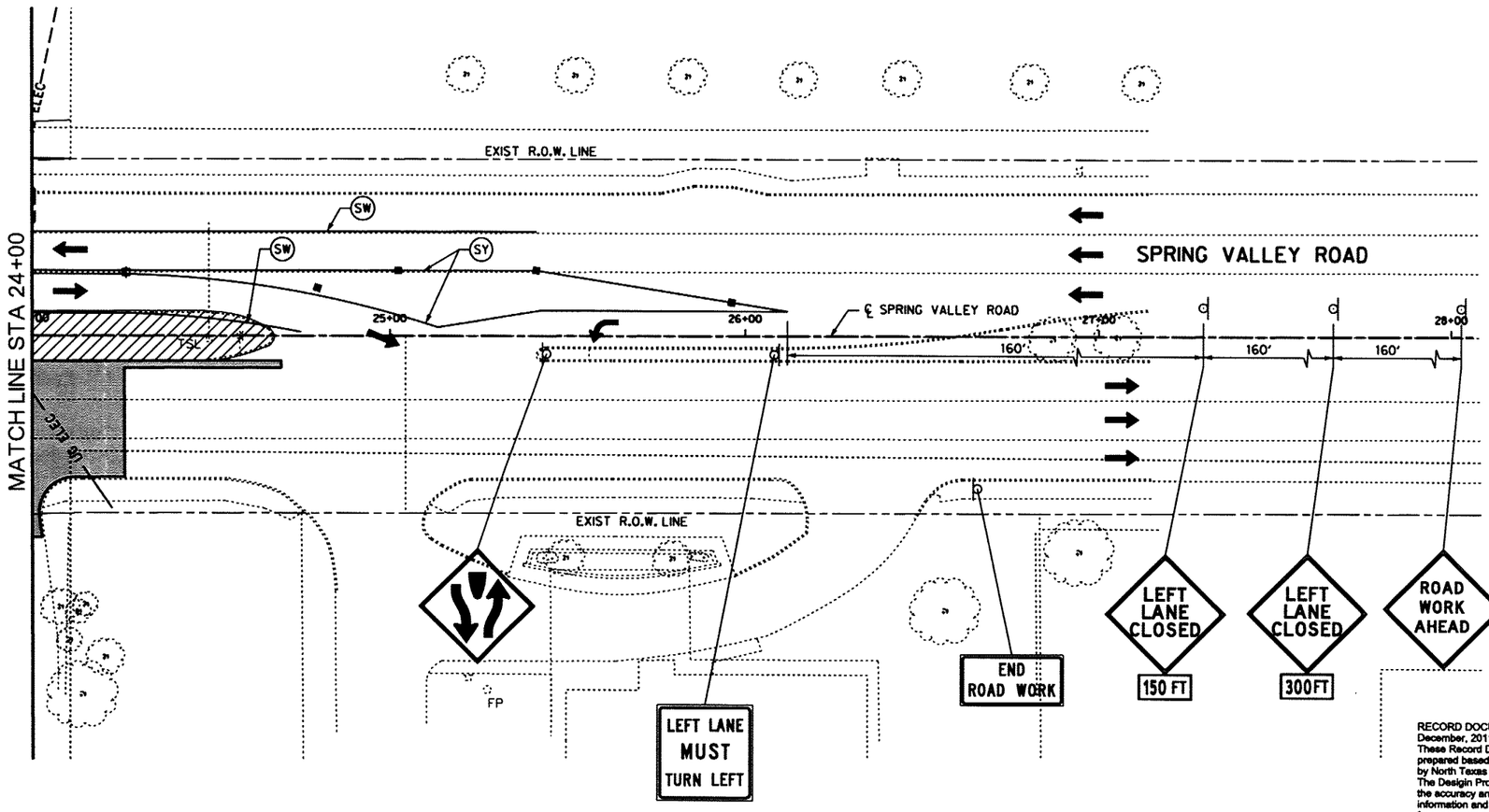
TRAFFIC CONTROL PLAN PHASE 2

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 02-01-04	TCP-11

SHEET 69 OF 163

RECORD DRAWINGS



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SCALE IN FEET

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M.F. ROMANOWSKI
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RECORD DRAWING SUBMITTAL

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

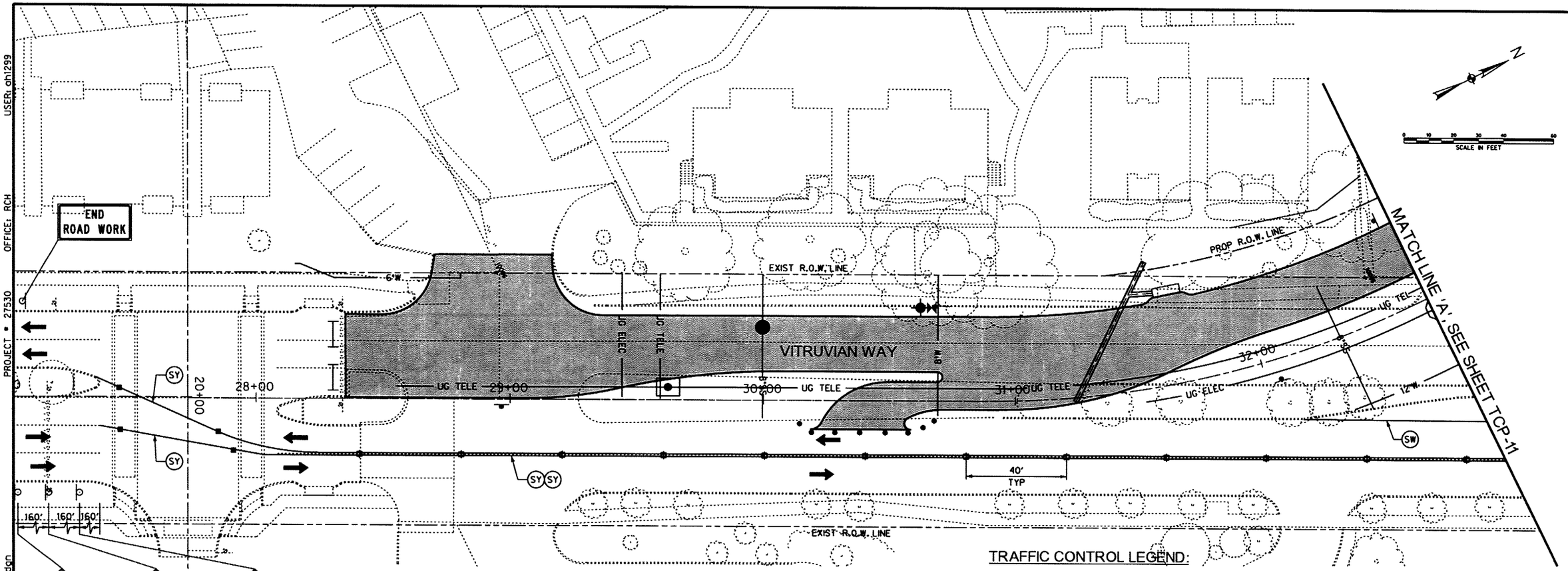
TRAFFIC CONTROL PLAN PHASE 2

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 02-01-05	TCP-12

SHEET 70 OF 163

RECORD DRAWINGS



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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/8/2011

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 2

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 02-01-06	TCP-13

SHEET 71 OF 163

RECORD DRAWINGS

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PROJECT # 27530
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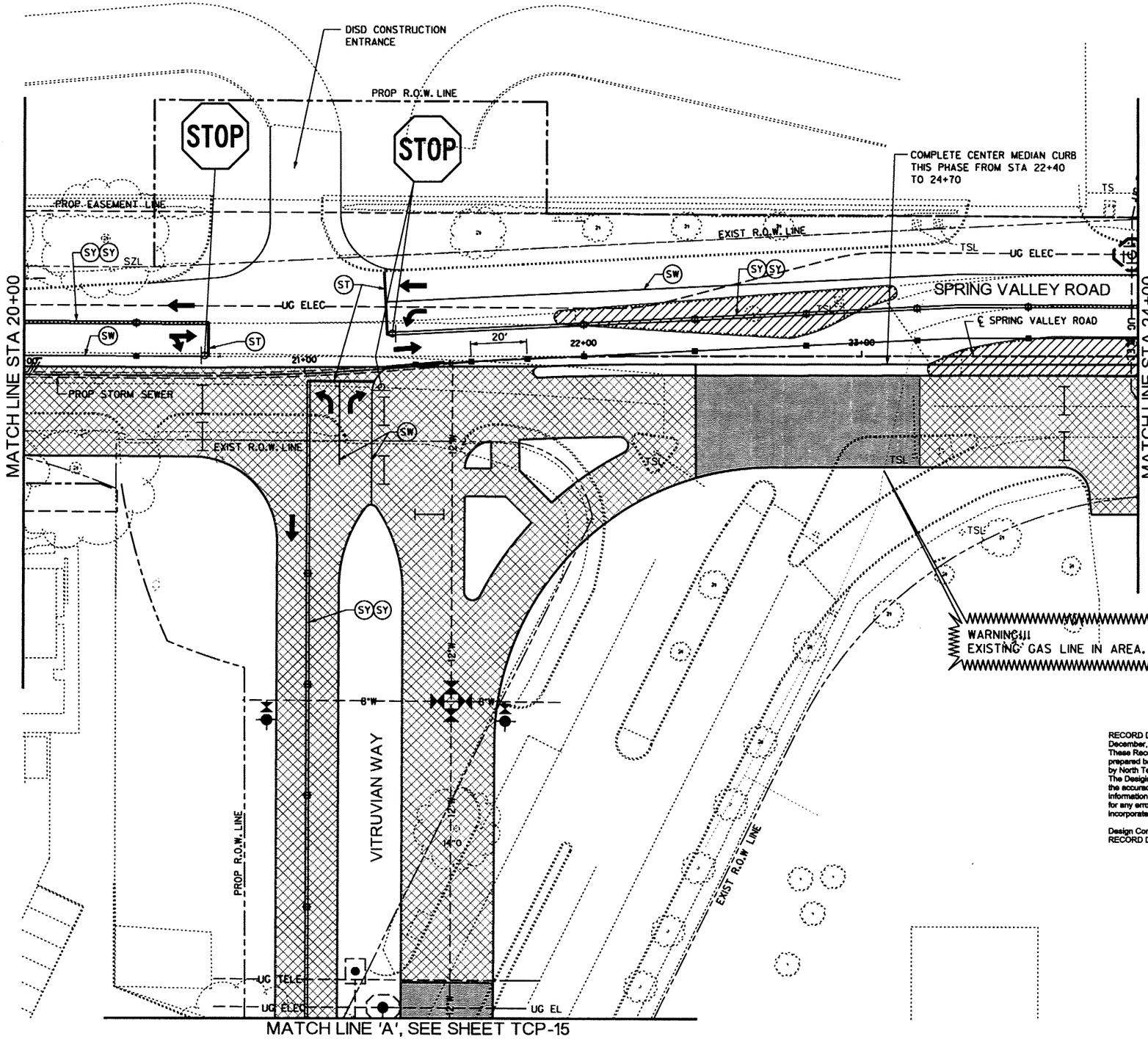

SCALE IN FEET

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STATE OF TEXAS
M.E. ROMANOWSKI
94906
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/5/2011

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

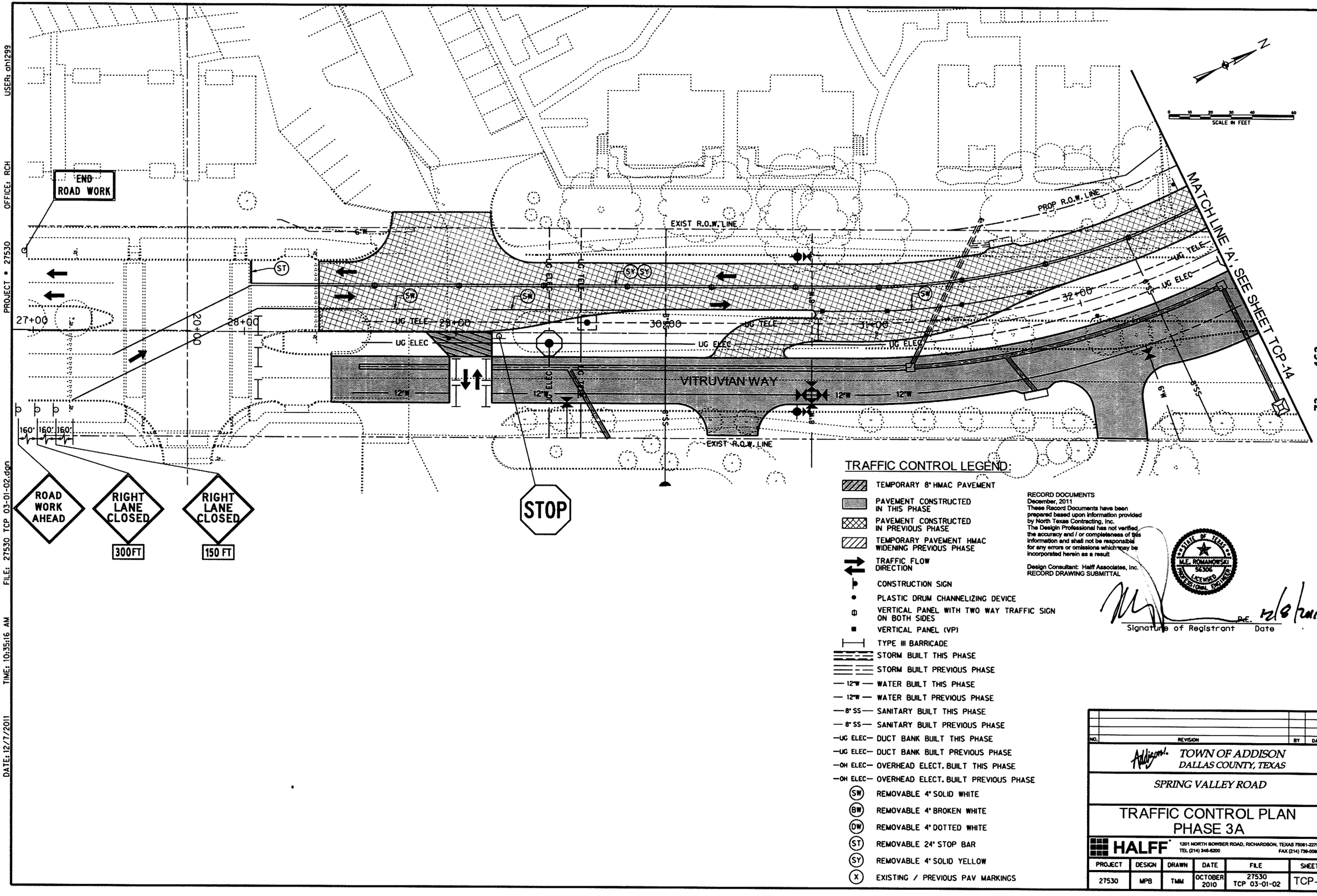
TRAFFIC CONTROL PLAN PHASE 3A

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 03-01-01	TCP-14

SHEET 72 OF 163

RECORD DRAWINGS



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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
96306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/8/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 3A

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 03-01-02	TCP-15

SHEET 73 OF 163

RECORD DRAWINGS

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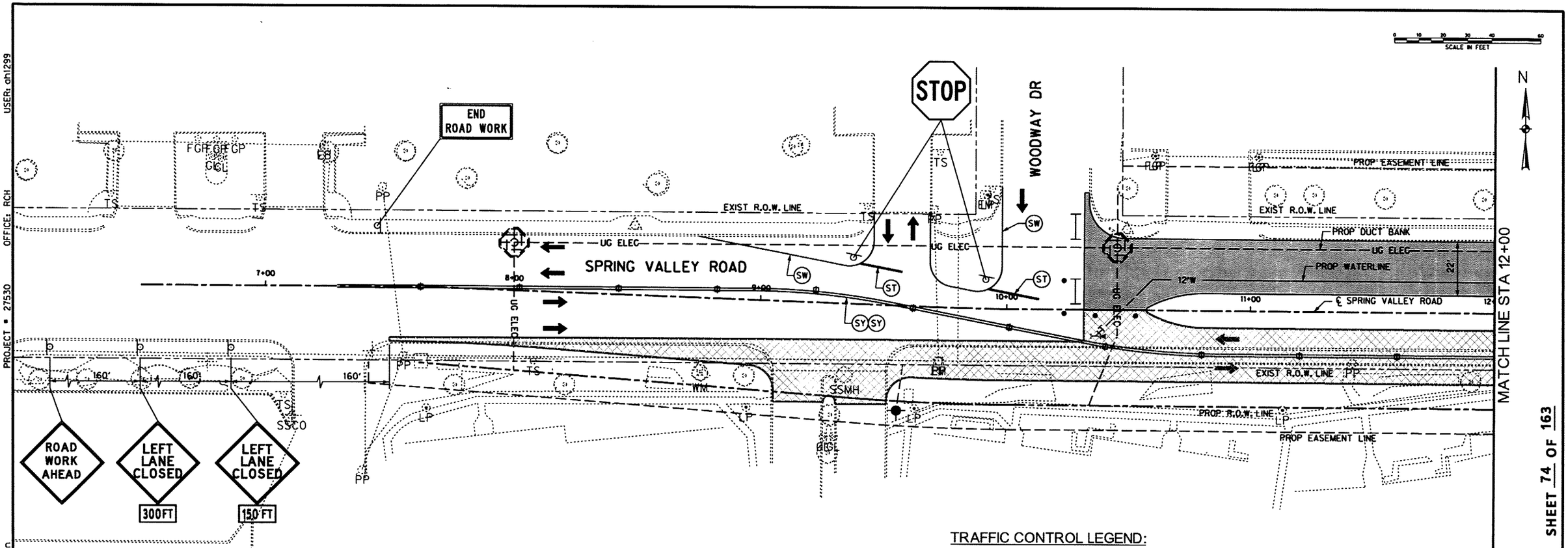

TRAFFIC CONTROL LEGEND:

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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant ,P.E. Date 12/8/2011

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 3B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
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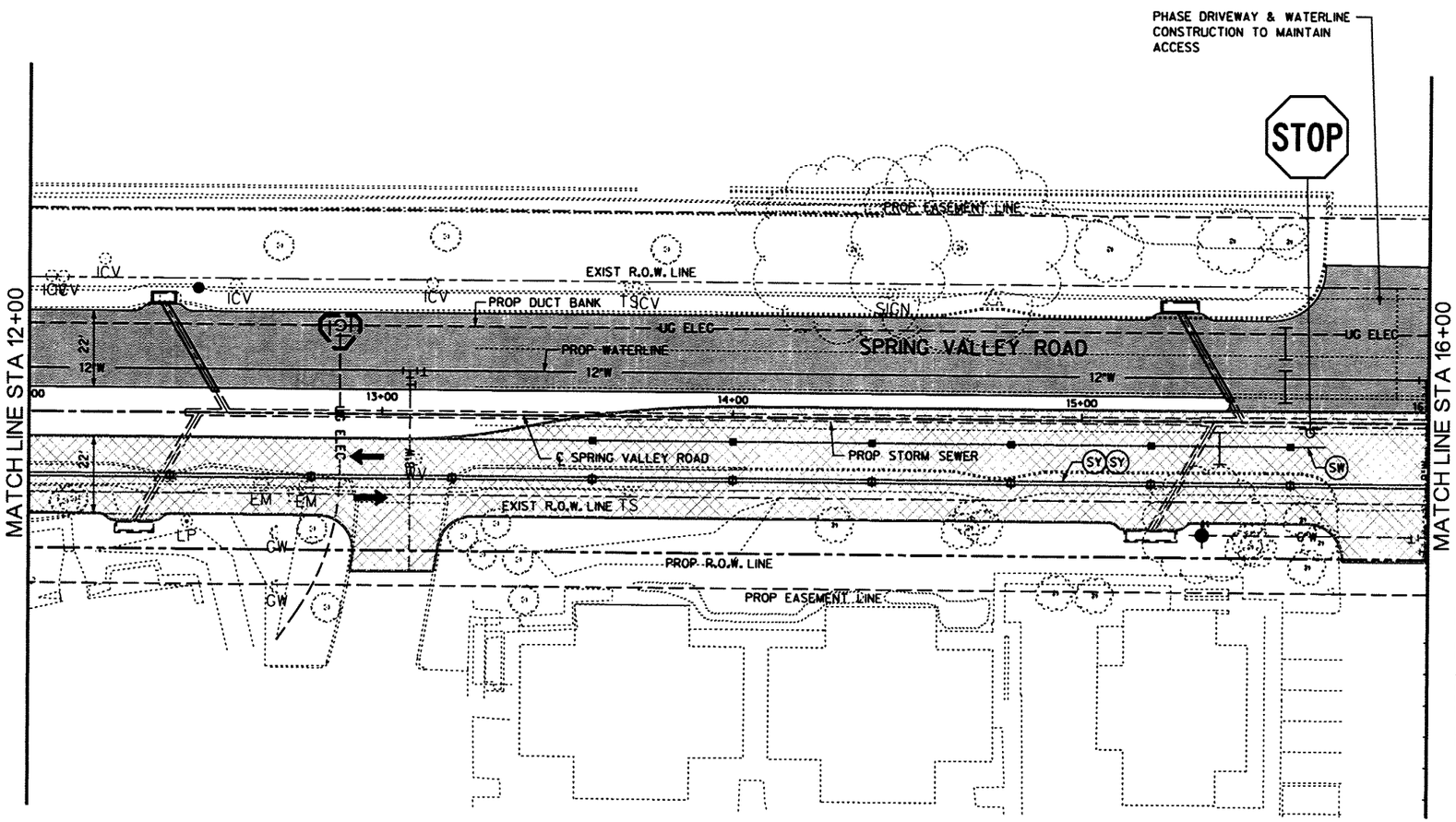
RECORD DRAWINGS



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TRAFFIC CONTROL LEGEND:

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94306
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PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/2011
Date

SHEET 75 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

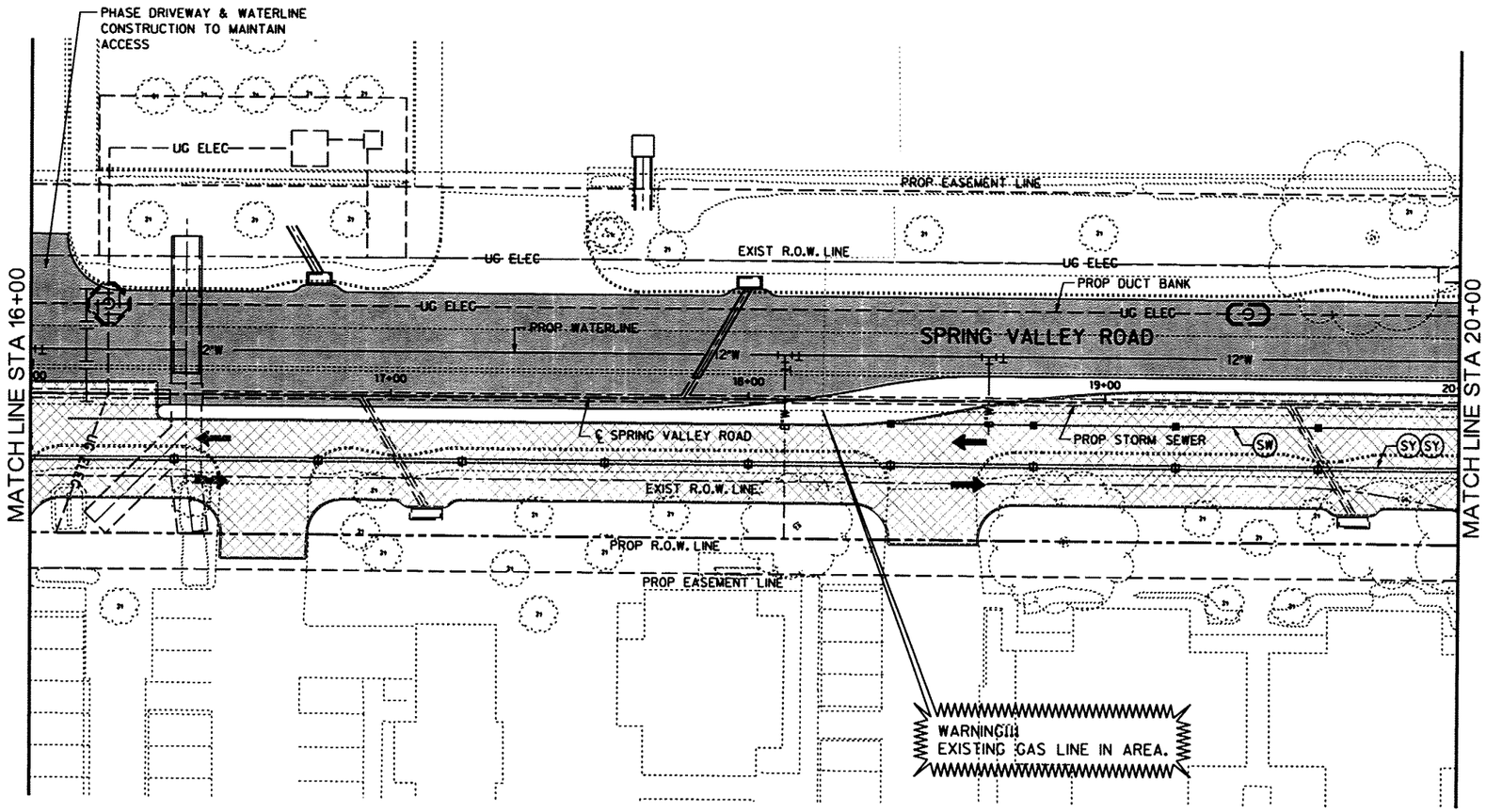
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 3B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 03-02-02	TCP-17



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P.E. 12/8/2011
Signature of Registrant Date

SHEET 76 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 3B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 03-02-03	TCP-18

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OFFICE: RCH
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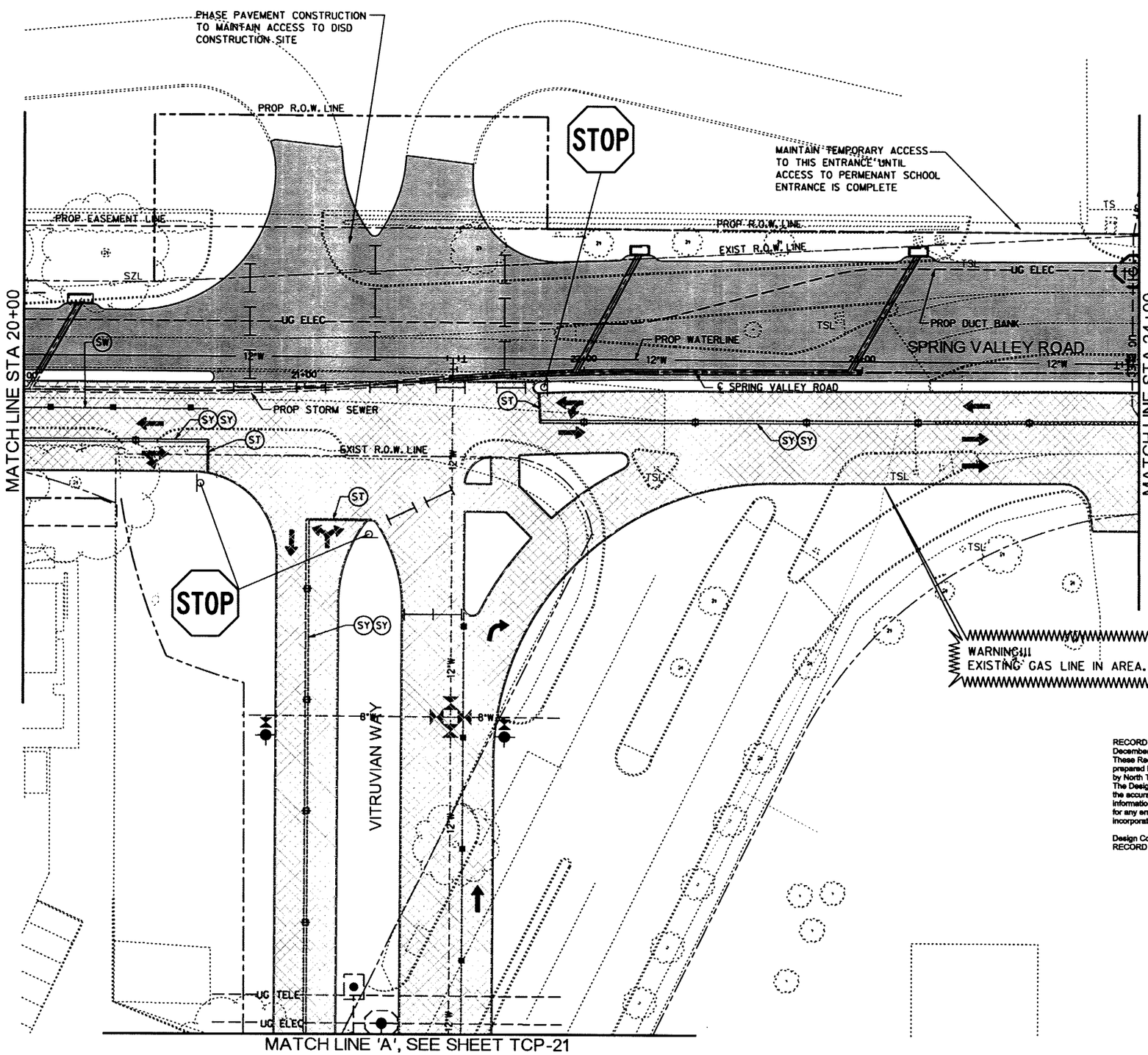

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M.E. ROMANOWSKI 56306 LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

Signature of Registrant P.E. 12/8/2011 Date

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TOWN OF ADDISON
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SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 3B

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1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
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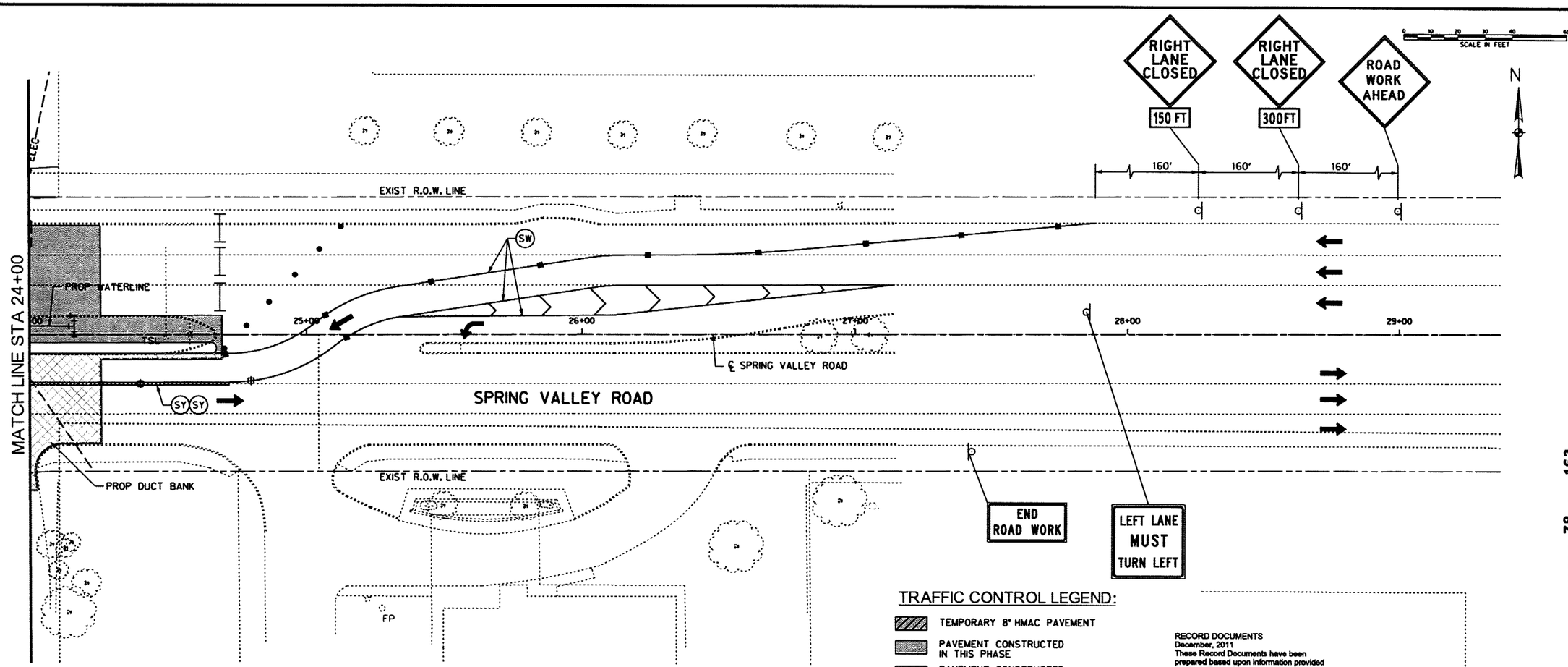
RECORD DRAWINGS



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- STORM BUILT THIS PHASE
- STORM BUILT PREVIOUS PHASE
- 12"W — WATER BUILT THIS PHASE
- 12"W — WATER BUILT PREVIOUS PHASE
- 8" SS — SANITARY BUILT THIS PHASE
- 8" SS — SANITARY BUILT PREVIOUS PHASE
- UG ELEC — DUCT BANK BUILT THIS PHASE
- UG ELEC — DUCT BANK BUILT PREVIOUS PHASE
- OH ELEC — OVERHEAD ELECT. BUILT THIS PHASE
- OH ELEC — OVERHEAD ELECT. BUILT PREVIOUS PHASE
- (SW) REMOVABLE 4" SOLID WHITE
- (BW) REMOVABLE 4" BROKEN WHITE
- (DW) REMOVABLE 4" DOTTED WHITE
- (ST) REMOVABLE 24" STOP BAR
- (SY) REMOVABLE 4" SOLID YELLOW
- (X) EXISTING / PREVIOUS PAV MARKINGS

RECORD DOCUMENTS
December, 2011
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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
96306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/20/2011
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 3B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 03-02-05	TCP-20

SHEET 78 OF 163

RECORD DRAWINGS

USER: ah1299
PROJECT # 27530 OFFICE: RCH
FILE: 27530 TCP 03-02-05.dgn
TIME: 10:41:41 AM
DATE: 12/7/2011

USER: dh1299
OFFICE: RCH
PROJECT # 27530
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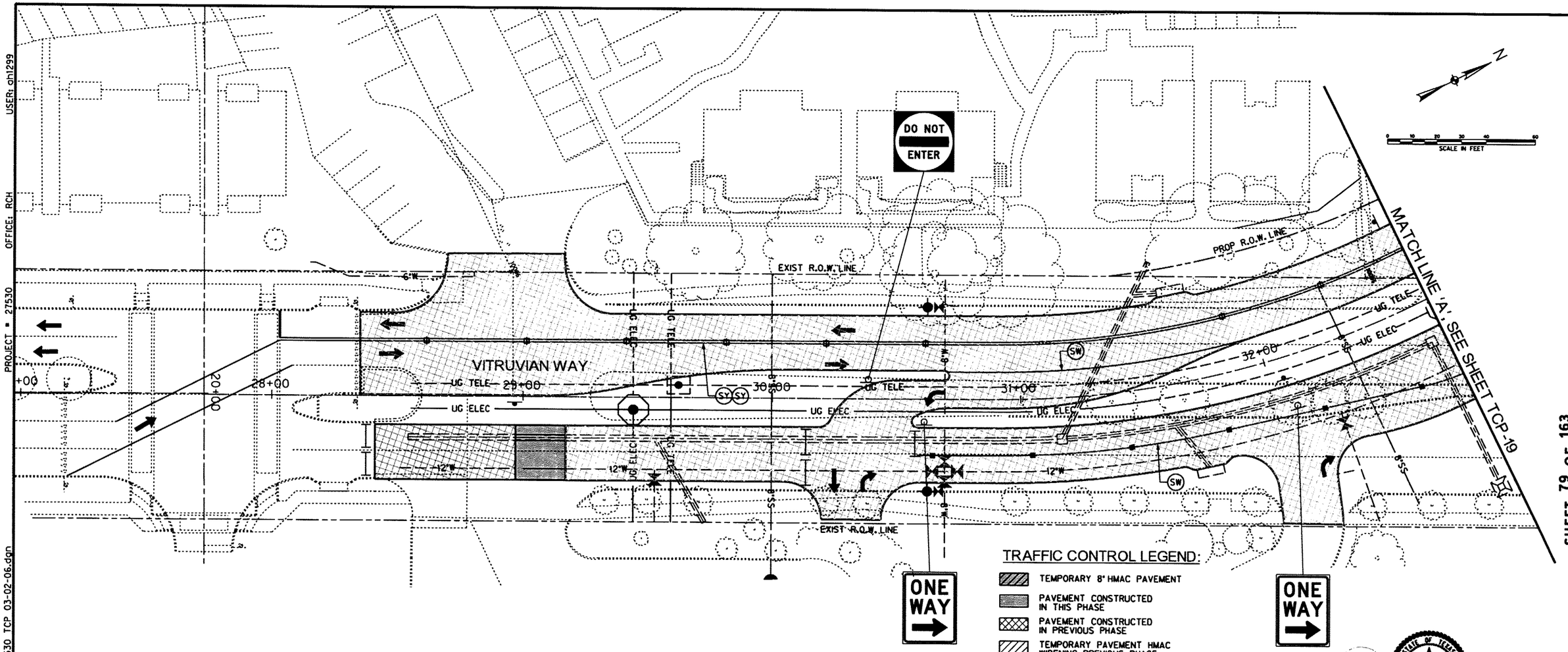
TIME: 10:41:53 AM
DATE: 12/7/2011



TRAFFIC CONTROL LEGEND:

- TEMPORARY 8" HMAC PAVEMENT
- PAVEMENT CONSTRUCTED IN THIS PHASE
- PAVEMENT CONSTRUCTED IN PREVIOUS PHASE
- TEMPORARY PAVEMENT HMAC WIDENING PREVIOUS PHASE
- TRAFFIC FLOW DIRECTION
- CONSTRUCTION SIGN
- PLASTIC DRUM CHANNELIZING DEVICE
- VERTICAL PANEL WITH TWO WAY TRAFFIC SIGN ON BOTH SIDES
- VERTICAL PANEL (VP)
- TYPE III BARRICADE
- STORM BUILT THIS PHASE
- STORM BUILT PREVIOUS PHASE
- 12"W — WATER BUILT THIS PHASE
- 12"W — WATER BUILT PREVIOUS PHASE
- 8" SS — SANITARY BUILT THIS PHASE
- 8" SS — SANITARY BUILT PREVIOUS PHASE
- UG ELEC — DUCT BANK BUILT THIS PHASE
- UG ELEC — DUCT BANK BUILT PREVIOUS PHASE
- OH ELEC — OVERHEAD ELECT. BUILT THIS PHASE
- OH ELEC — OVERHEAD ELECT. BUILT PREVIOUS PHASE
- (SW) REMOVABLE 4" SOLID WHITE
- (BW) REMOVABLE 4" BROKEN WHITE
- (DW) REMOVABLE 4" DOTTED WHITE
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RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant, P.E. Date 12/8/2011

NO.	REVISION	BY	DATE

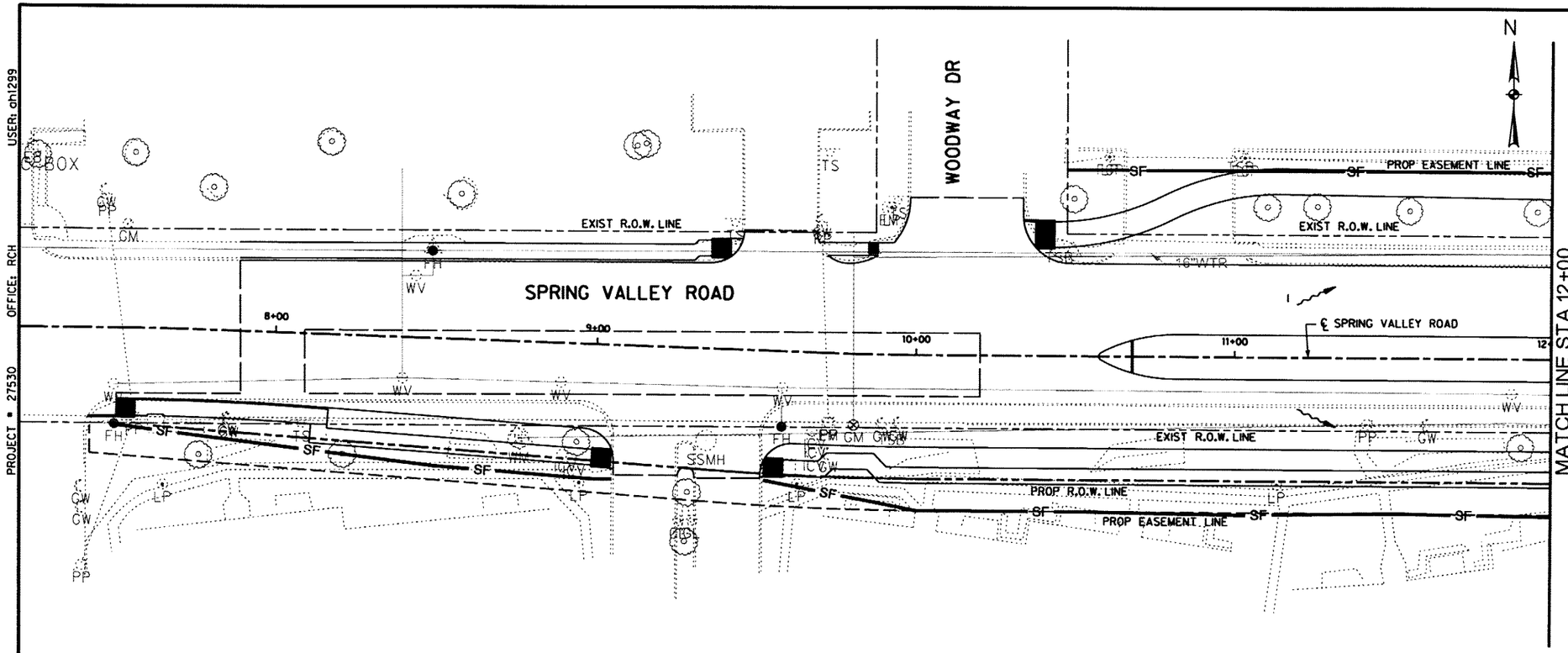
TOWN OF ADDISON
DALLAS COUNTY, TEXAS

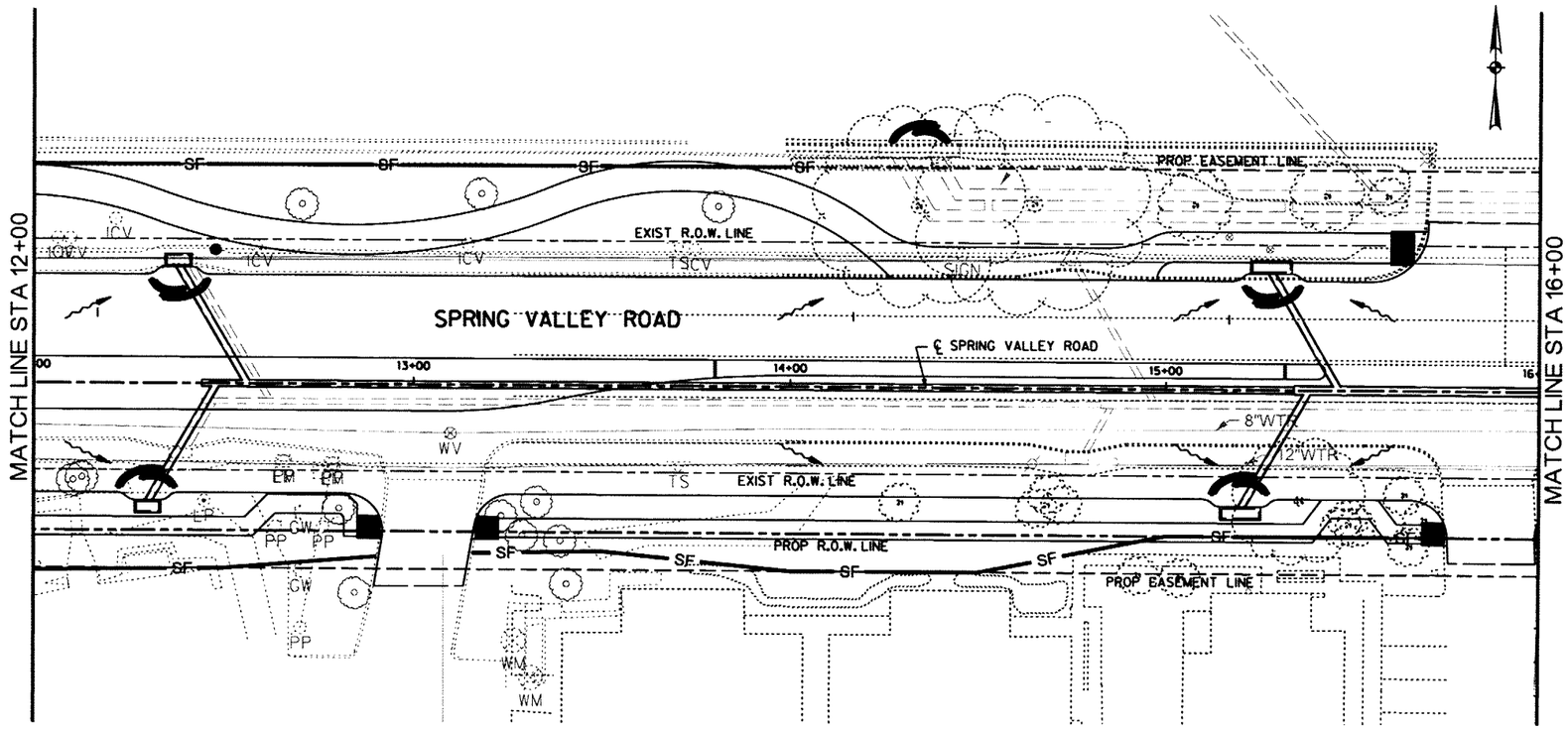
SPRING VALLEY ROAD

TRAFFIC CONTROL PLAN PHASE 3B

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 TCP 03-02-06	TCP-21





LEGEND

- DIRECTION OF DRAINAGE FLOW
- PROP STORM DRAIN
- EXIST STORM DRAIN
- SF — SEDIMENT CONTROL FENCE
- INLET PROTECTION

RECORD DOCUMENTS
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STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/6/2011 Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

SW3P LAYOUTS
STA 7+49.89 TO STA 16+00

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 SW3P 01	EC-1

SHEET 80 OF 163

RECORD DRAWINGS

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OFFICE: RCH
PROJECT # 27530
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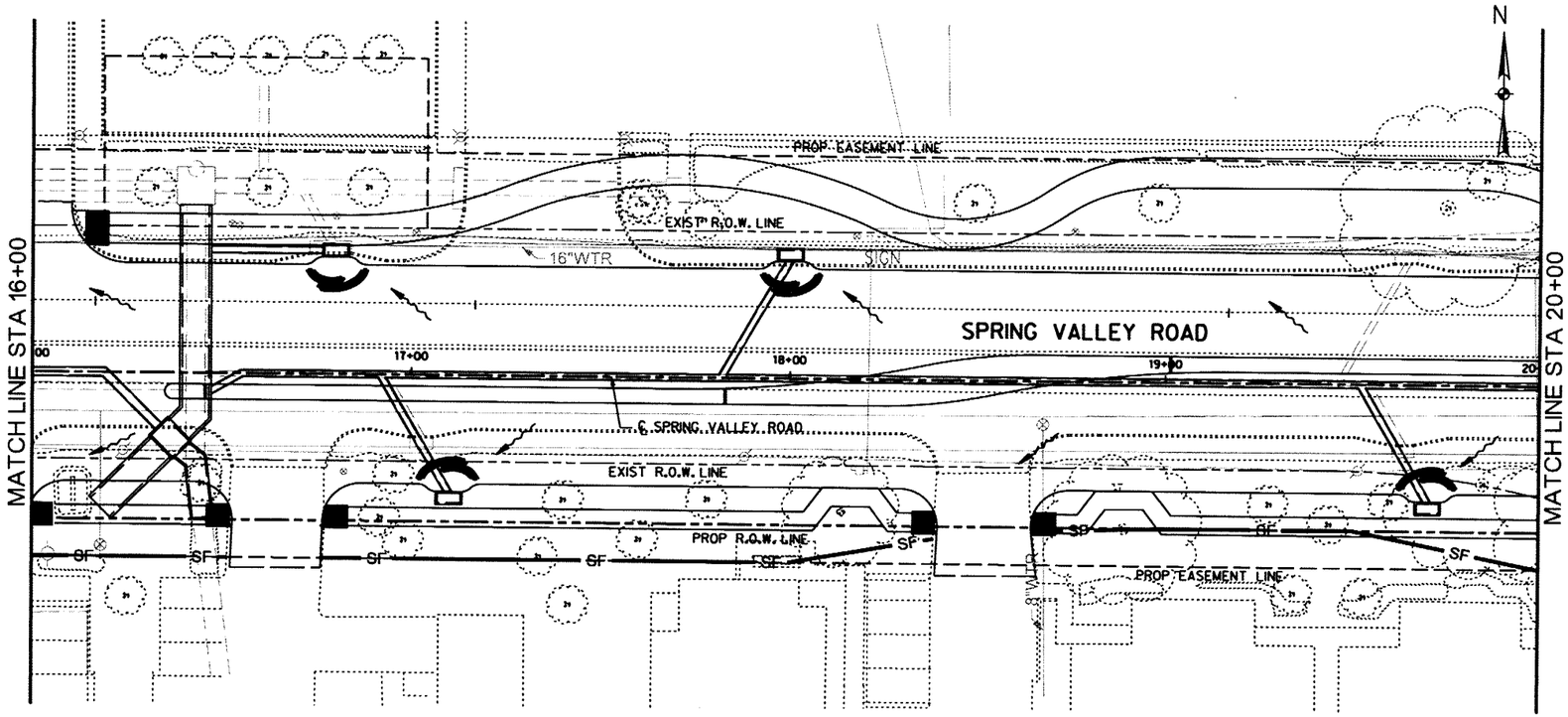
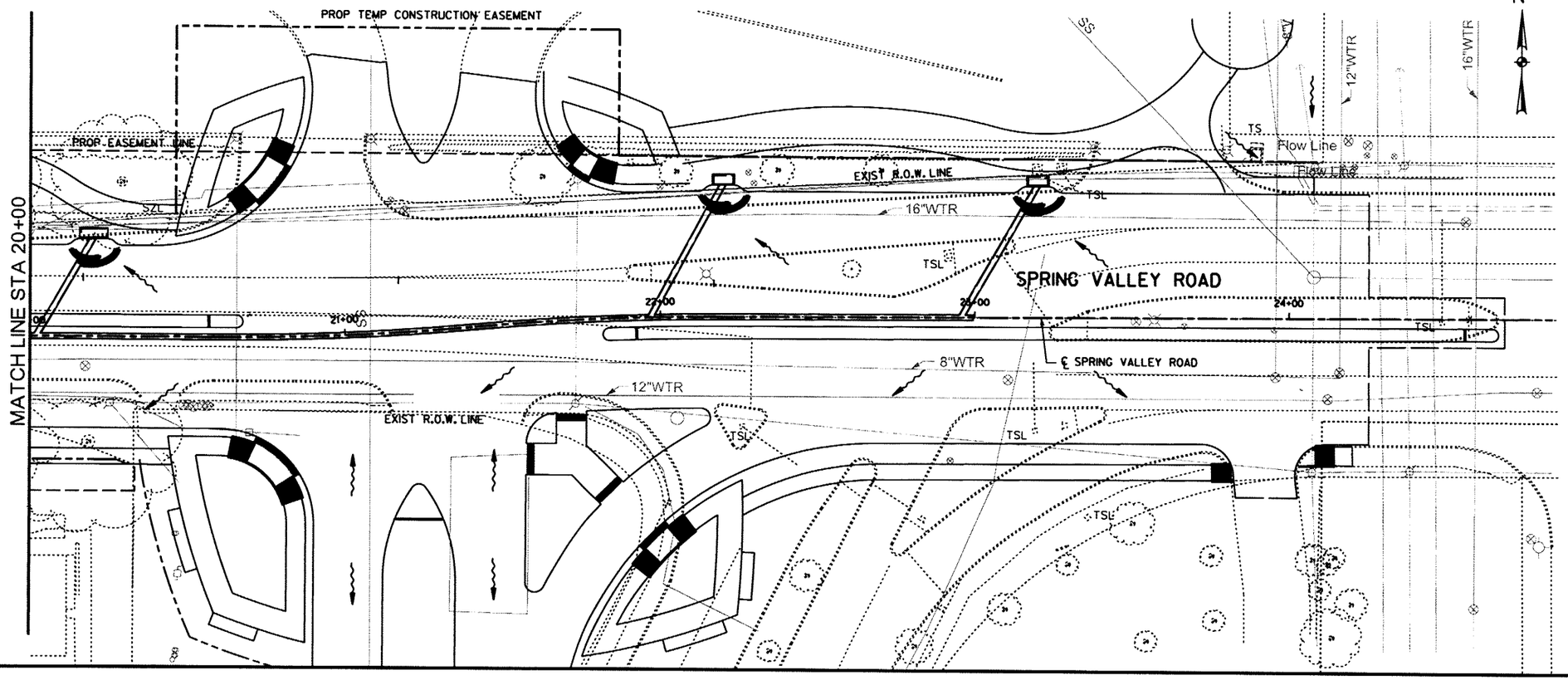


SCALE IN FEET 0 10 20 30 40 60

LEGEND

- DIRECTION OF DRAINAGE FLOW
- PROP STORM DRAIN
- EXIST STORM DRAIN
- SF — SEDIMENT CONTROL FENCE
- INLET PROTECTION



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STATE OF TEXAS
M.F. ROMANOWSKI
92305
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant P.E. Date 12/7/11

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

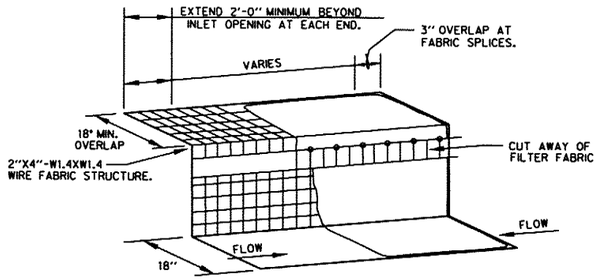
SPRING VALLEY ROAD

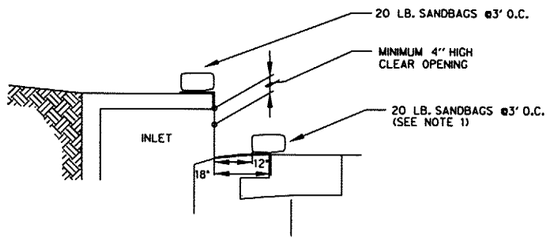
SW3P LAYOUTS
STA 16+00 TO STA 26+11.52

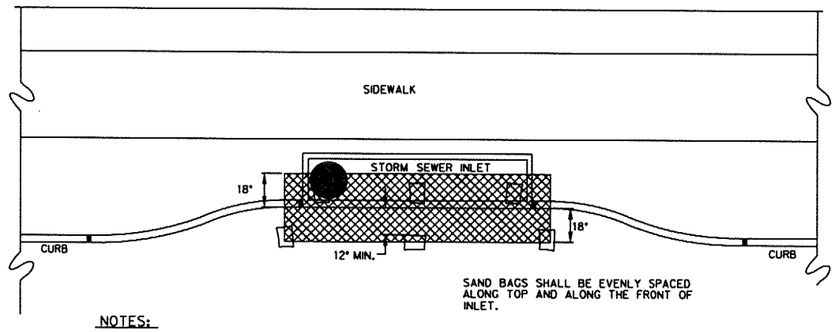
HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 SW3P 02	EC-2

RECORD DRAWINGS







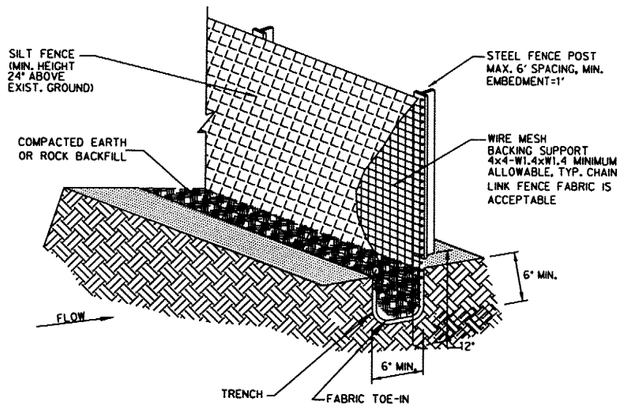
SAND BAGS SHALL BE EVENLY SPACED ALONG TOP AND ALONG THE FRONT OF INLET.

NOTES:

1. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL TO PROVIDE A 4" MINIMUM CLEAR OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
2. INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
3. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM-WATER BEGINS TO OVERTOP THE CURB.
4. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

INLET OPENING	MINIMUM NUMBER OF SAND BAGS	
	TOP	FRONT
5'	2	3
10'	3	3
15'	3	4
20'	4	4

CURB INLET PROTECTION DETAIL
NOT TO SCALE



SILT FENCE ISOMETRIC PLAN VIEW
NOT TO SCALE

SILT FENCE GENERAL NOTES

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EACH 1/2" RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

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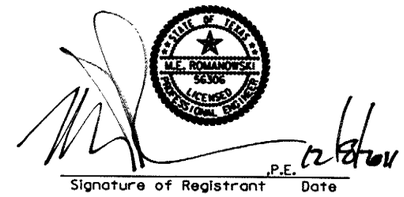
RECORD DRAWING SUBMITTAL



P.E.
Signature of Registrant Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

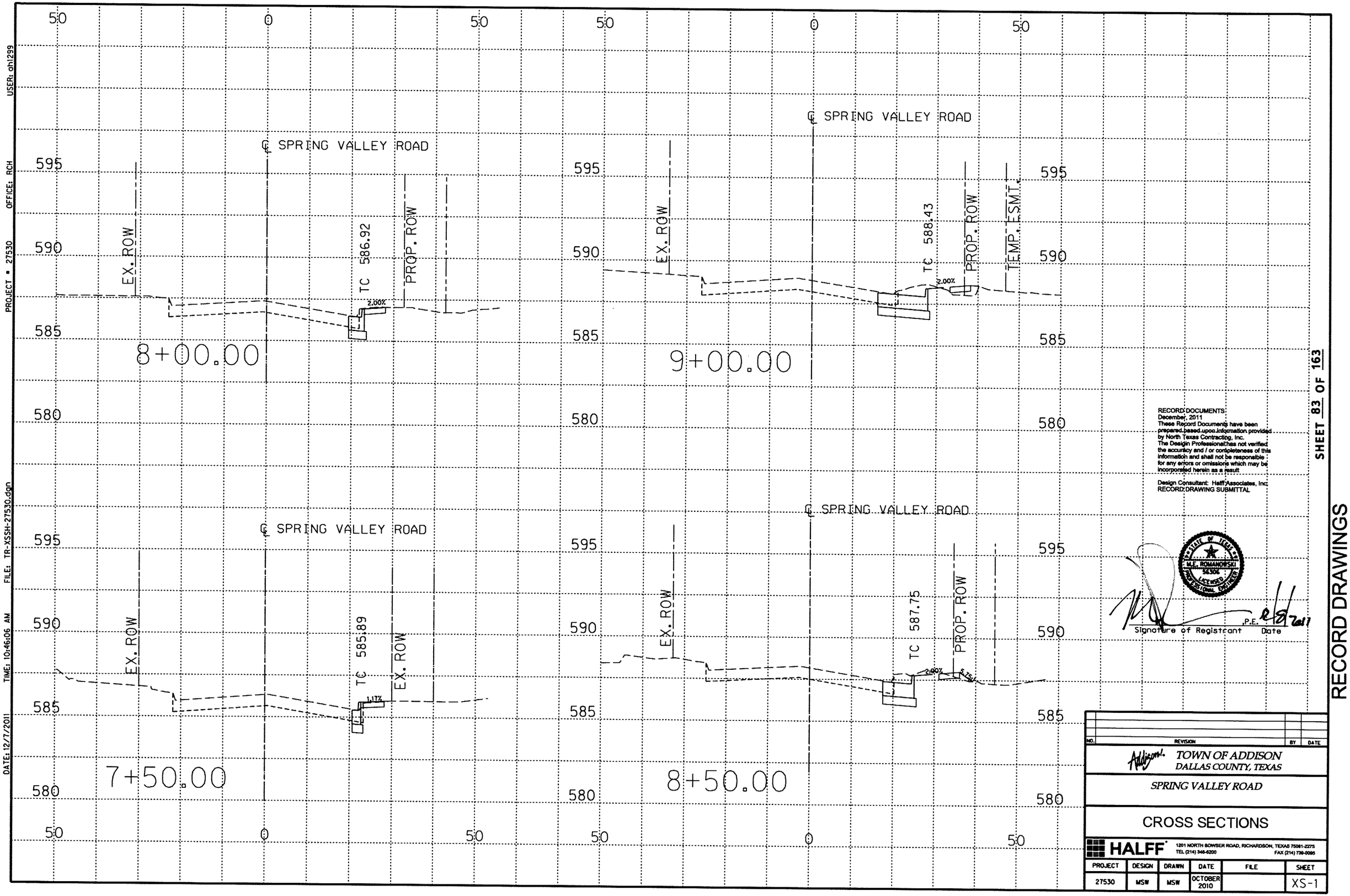
SPRING VALLEY ROAD

EROSION CONTROL DETAILS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MPB	TMM	OCTOBER 2010	27530 DTEC 01	DT-EC

RECORD DRAWINGS



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RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant ,P.E. Date

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

CROSS SECTIONS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MSW	MSW	OCTOBER 2010		XS-1

SHEET 83 OF 163

RECORD DRAWINGS

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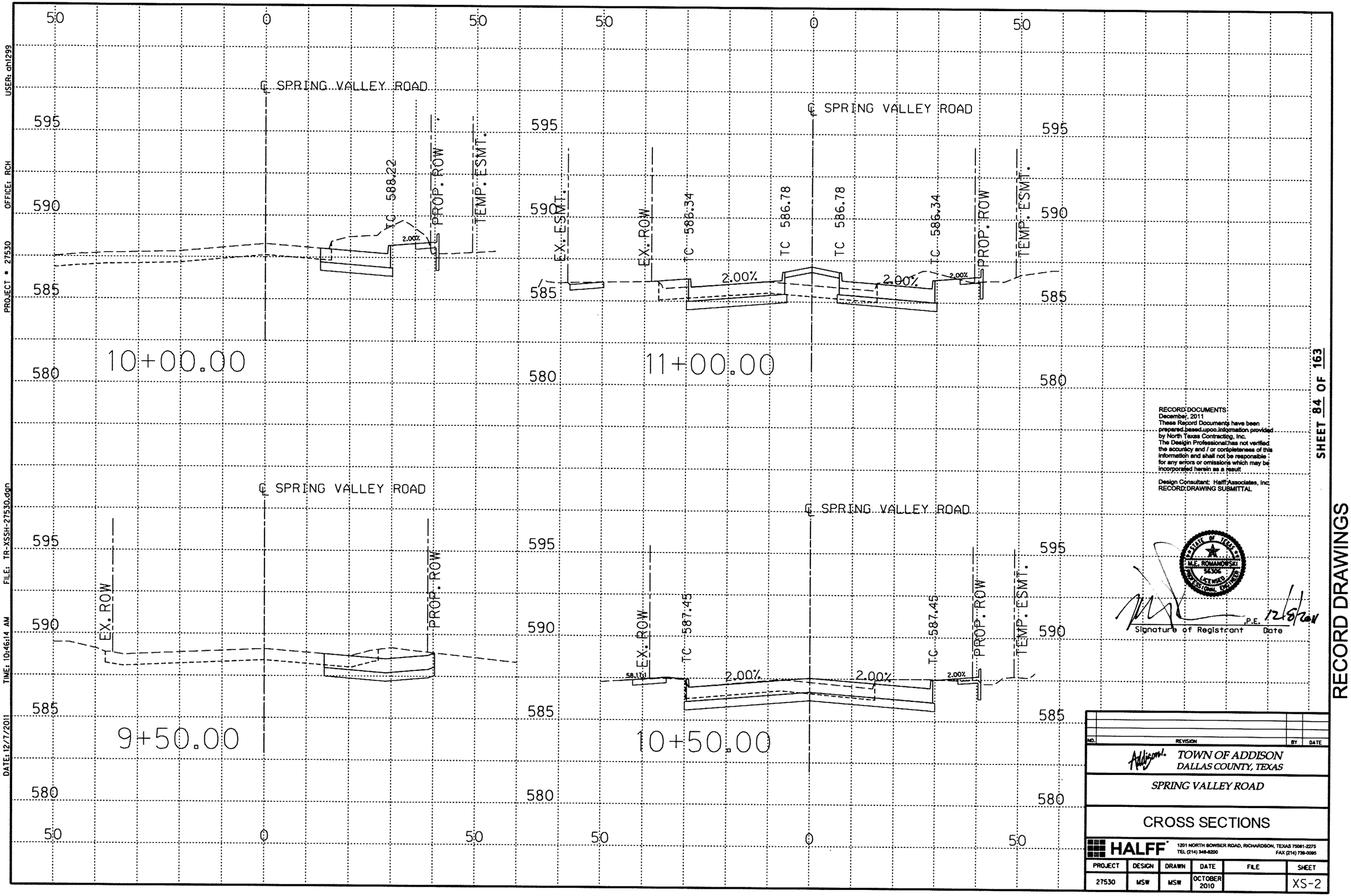
DATE: 12/7/2011



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Design Consultant: Halff Associates, Inc.
RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/8/2011
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NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

CROSS SECTIONS

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275 TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
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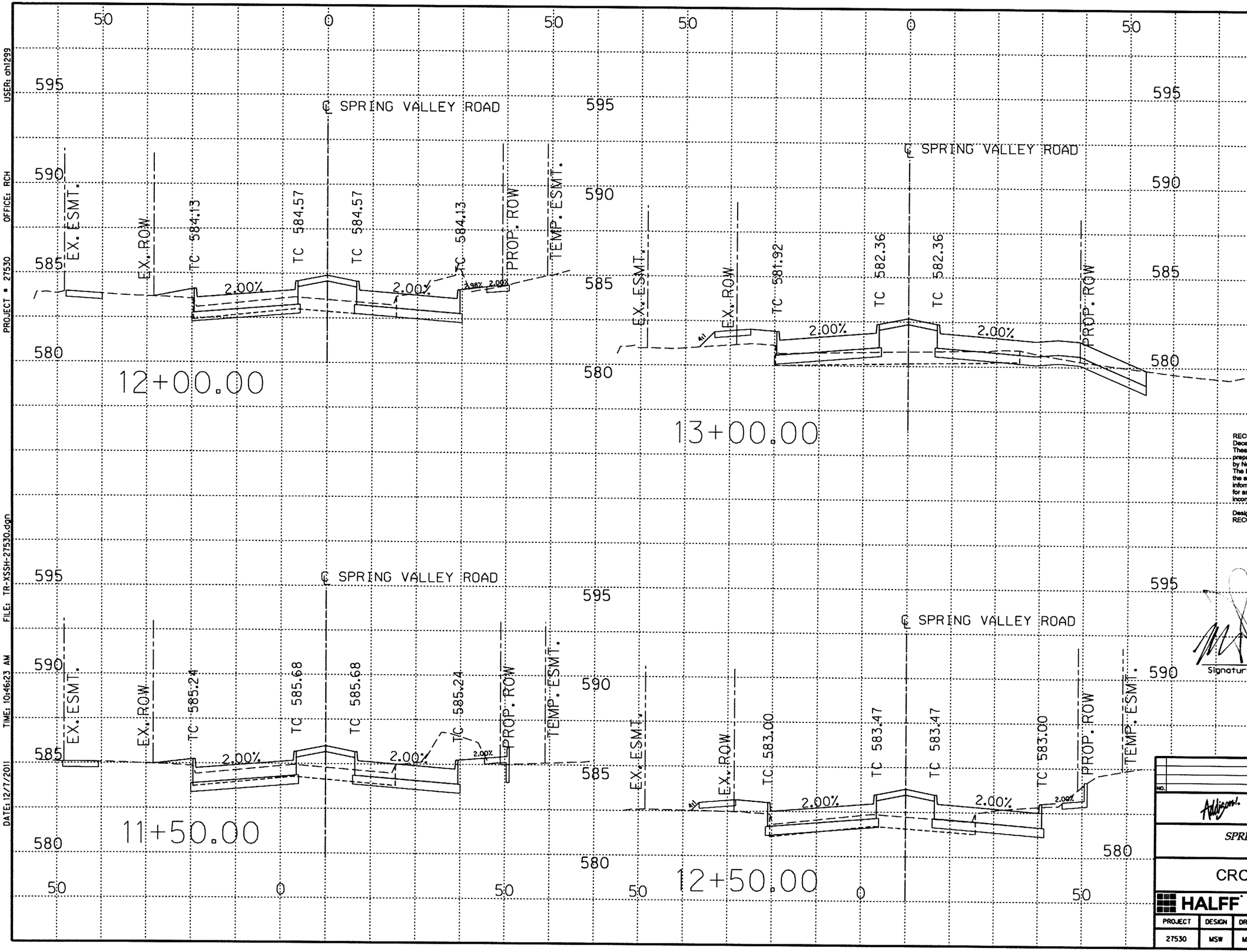

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SHEET 85 OF 163

RECORD DRAWINGS

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December, 2011
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Design Consultant: Halff Associates, Inc.
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STATE OF TEXAS
M.F. ROMANOWSKI
56306
LICENSED
PROFESSIONAL ENGINEER

P.E. 12/7/2011
Signature of Registrant Date

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TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

CROSS SECTIONS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
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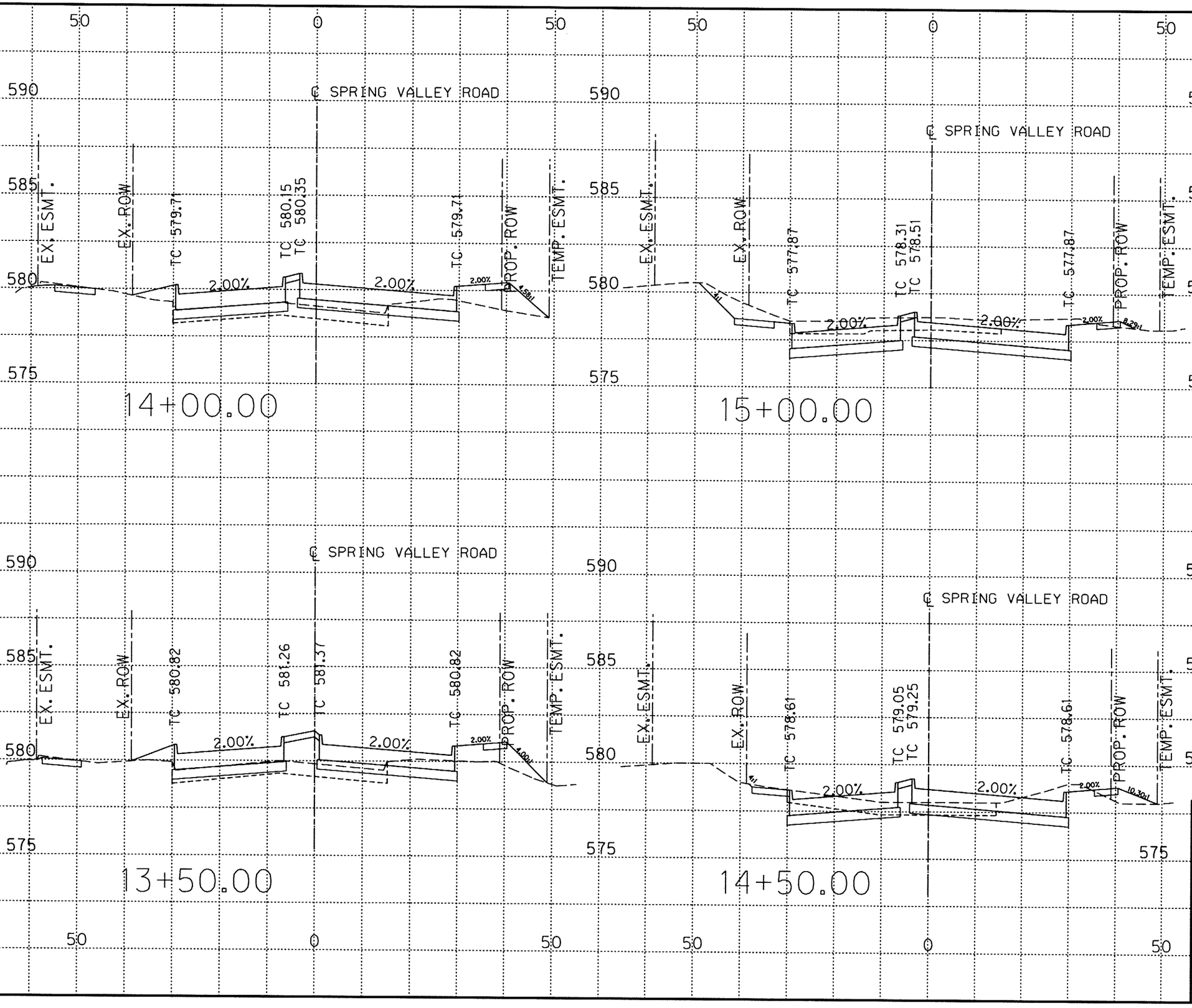

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56306
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PROFESSIONAL ENGINEER

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Addison. TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

CROSS SECTIONS

HALFF 1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MSW	MSW	OCTOBER 2010		XS-4

RECORD DRAWINGS

SHEET 86 OF 163

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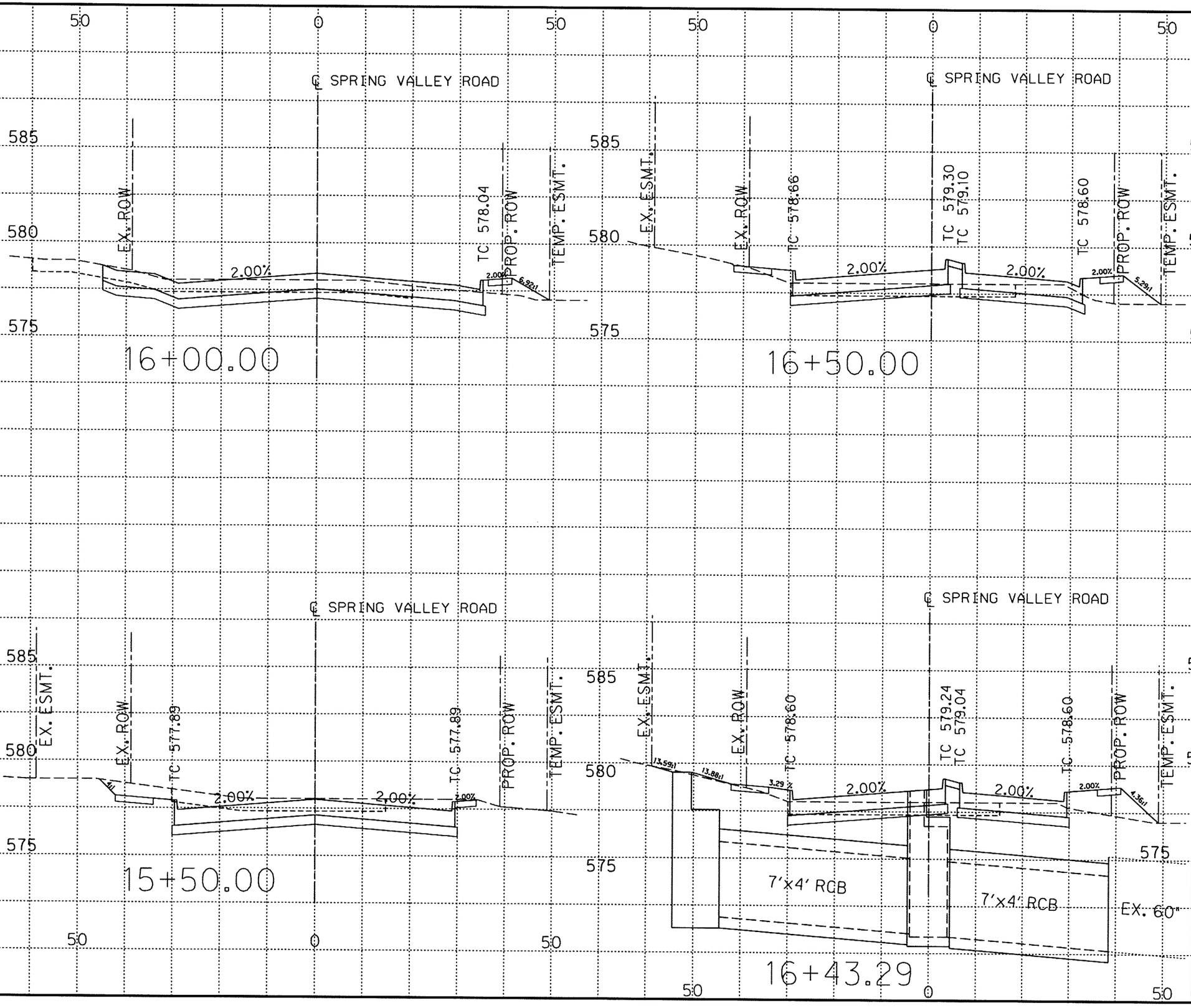

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STATE OF TEXAS
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PROFESSIONAL ENGINEER

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Date

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TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

CROSS SECTIONS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
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PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MSW	MSW	OCTOBER 2010		XS-5

SHEET 87 OF 163

RECORD DRAWINGS

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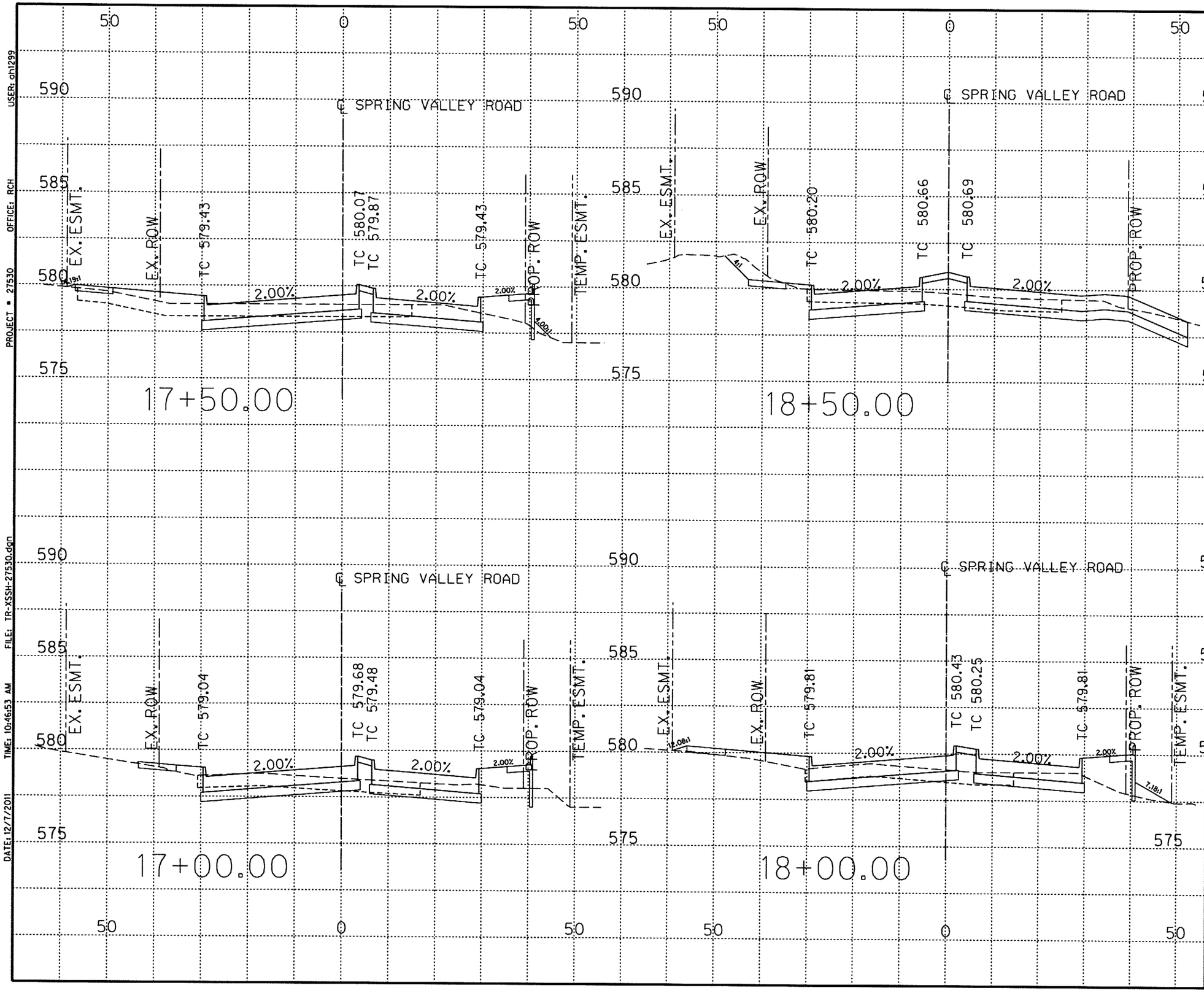

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M.F. ROMANOWSKI
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NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

CROSS SECTIONS

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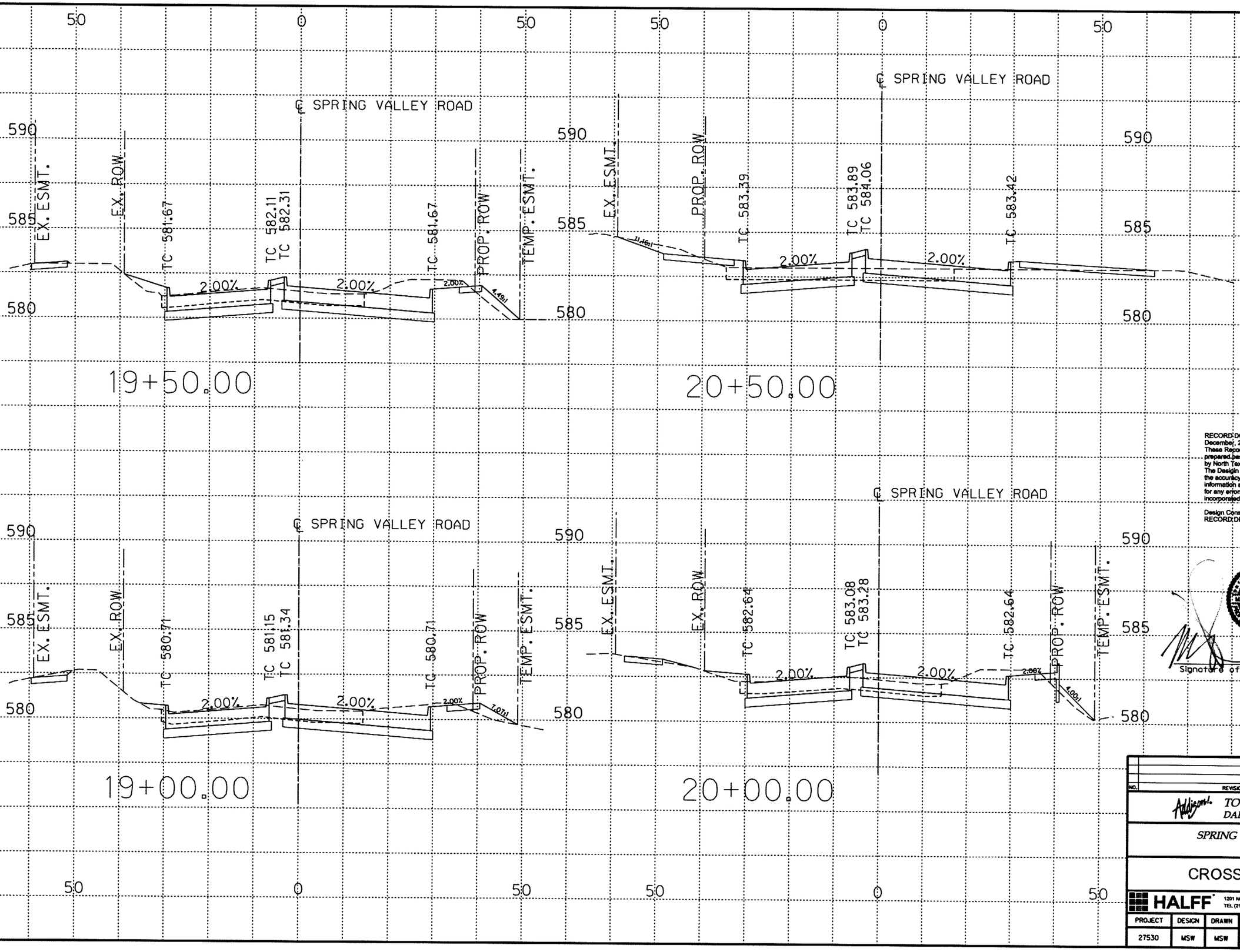
PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MSW	MSW	OCTOBER 2010		XS-6

SHEET 88 OF 163

RECORD DRAWINGS



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M.E. ROMANOWSKI
96306
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STATE OF TEXAS

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TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

CROSS SECTIONS

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PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MSW	MSW	OCTOBER 2010		XS-7

SHEET 89 OF 163

RECORD DRAWINGS

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PROJECT • 27530 OFFICE: RCH
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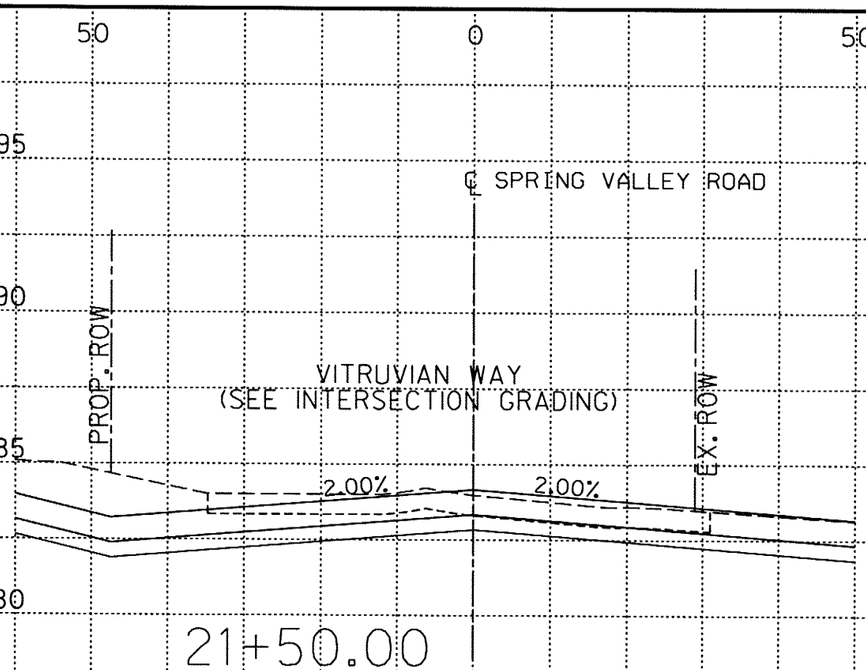

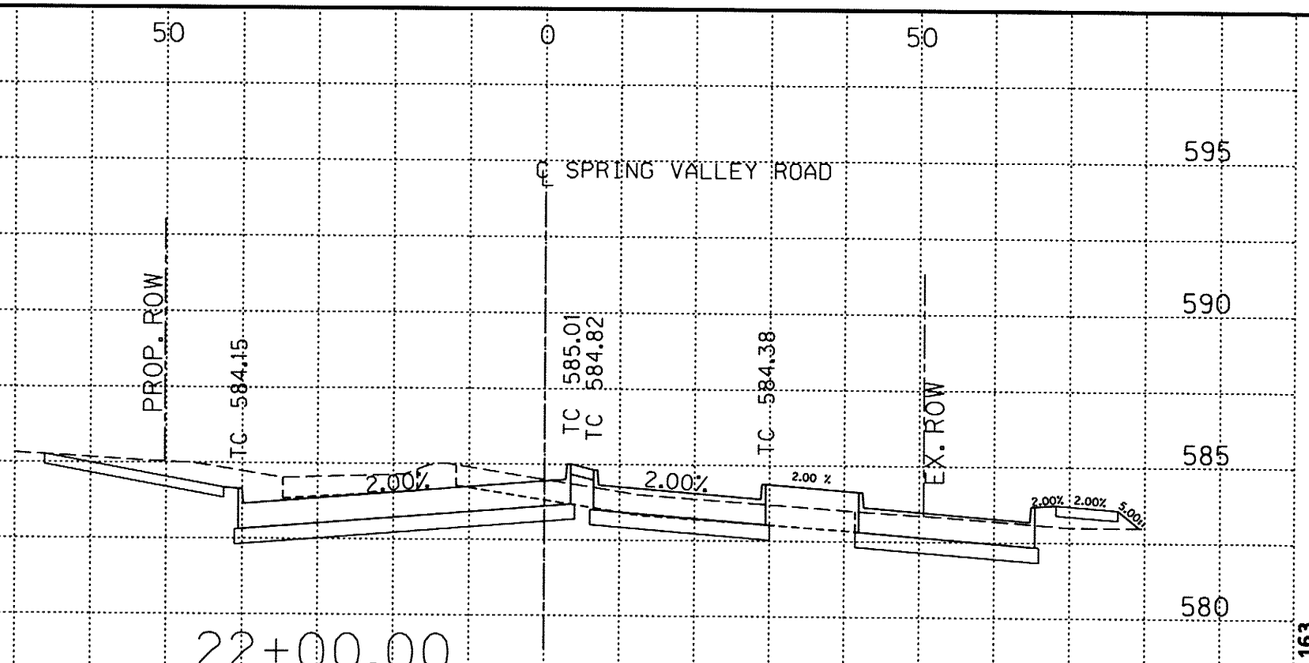

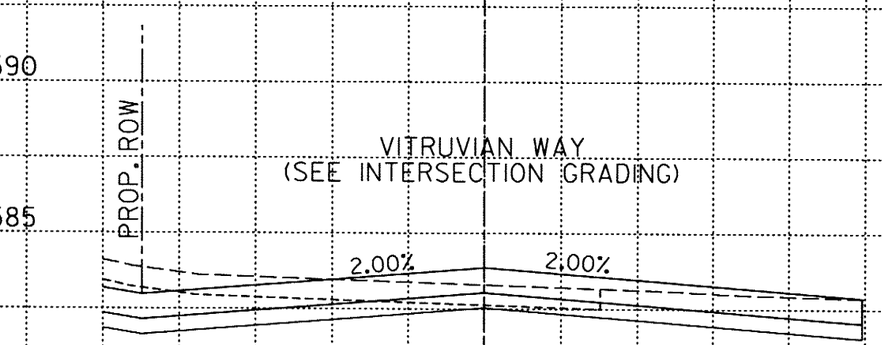

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RECORD DRAWING SUBMITTAL

STATE OF TEXAS
M.E. ROMANOWSKI
94306
LICENSED
PROFESSIONAL ENGINEER

Signature of Registrant, P.E. Date 12/8/2011

SHEET 90 OF 163

RECORD DRAWINGS

NO.	REVISION	BY	DATE

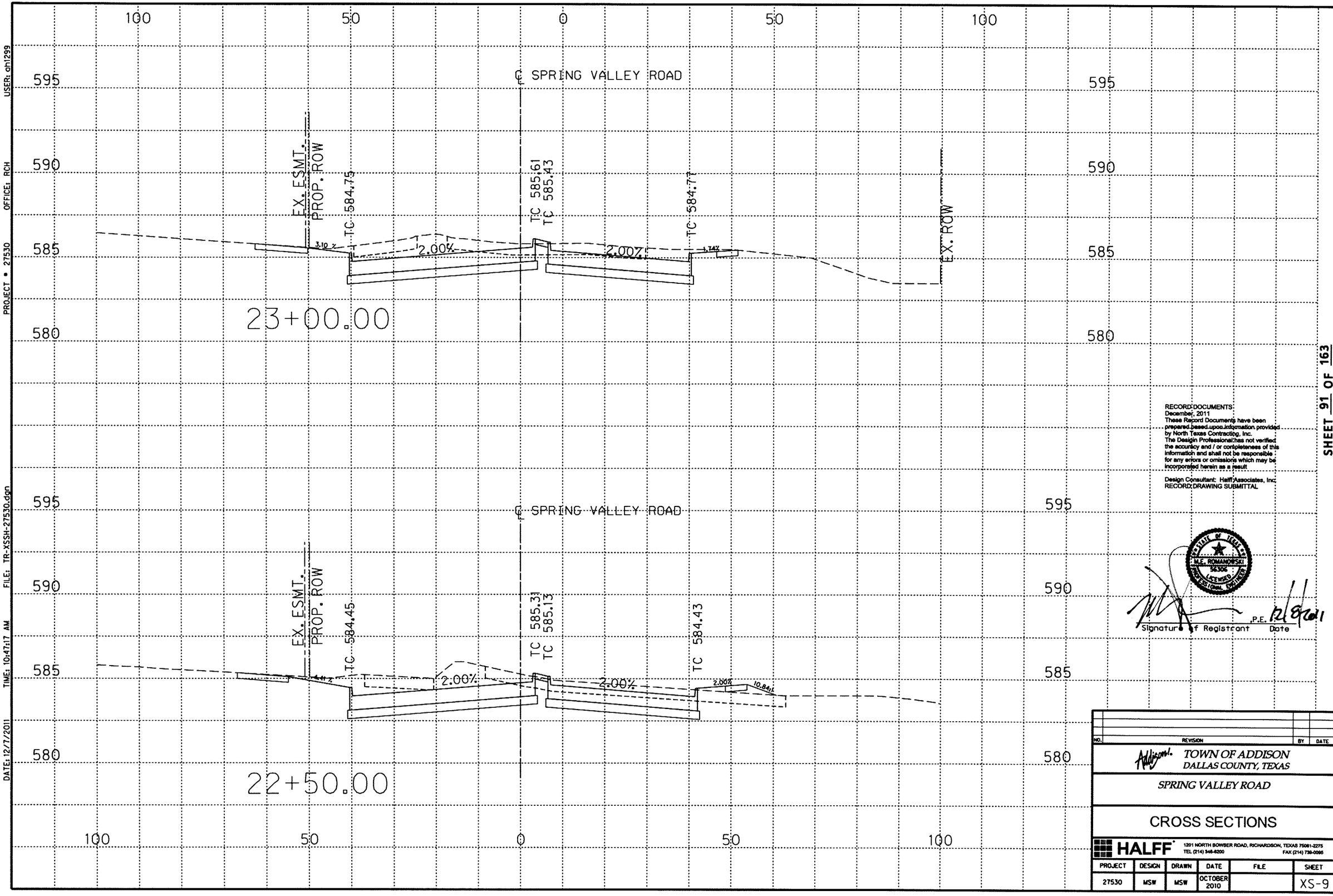
Addison TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

CROSS SECTIONS

HALFF
1201 NORTH BOWSER ROAD, RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MSW	MSW	OCTOBER 2010		XS-8



RECORD DOCUMENTS:
December, 2011
These Record Documents have been prepared based upon information provided by North Texas Contracting, Inc.
The Design Professional has not verified the accuracy and / or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result

Design Consultant: Halff Associates, Inc.
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SHEET 91 OF 163

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Addison. TOWN OF ADDISON
DALLAS COUNTY, TEXAS

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PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MSW	MSW	OCTOBER 2010		XS-9

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PROJECT # 27530
FILE: TR-XSSH-27530.dgn
TIME: 10:47:17 AM
DATE: 12/7/2011

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December, 2011
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M.E. ROMANOWSKI 94306 LICENSED PROFESSIONAL ENGINEER

Signature of Registrant P.E. 12/8/11 Date

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TOWN OF ADDISON
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SPRING VALLEY ROAD

CROSS SECTIONS

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TEL (214) 346-6200 FAX (214) 739-0095

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
27530	MSW	MSW	OCTOBER 2010		XS-10

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PROJECT # 27530
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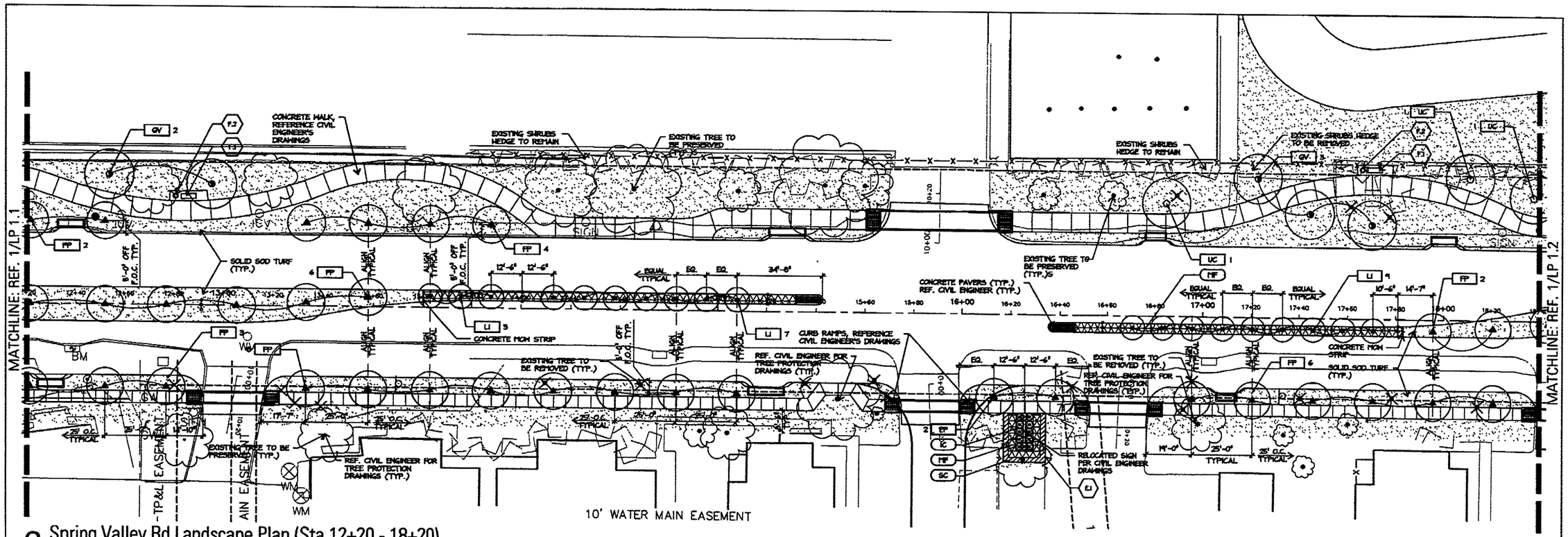
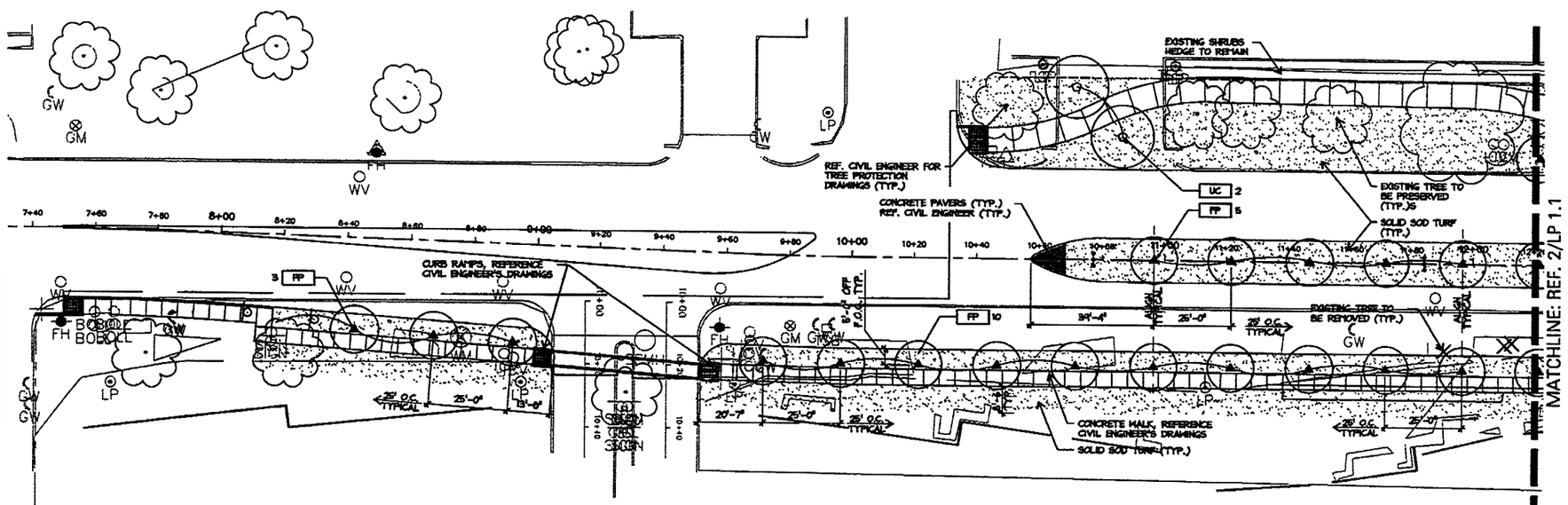
DATE: 12/7/2011



2 Spring Valley Rd Landscape Plan (Sta 12+20 - 18+20)
PLAN



1 Spring Valley Rd Landscape Plan (Sta 7+40 - 12+20)
PLAN

SCALE: 1"=20' NORTH

NOTE:
ALL TREES MUST BE A MINIMUM OF 3' OFF THE EDGE OF HIKE & BIKE TRAILS PER AASHTO STANDARDS.

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NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

LANDSCAPE PLANTING PLAN

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
D10438	NH	SA	OCTOBER 2010		LP 1.1

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MATCHLINE: REF. 2/LP 1.1

CONCRETE WALK, REFERENCE CIVIL ENGINEER'S DRAWINGS

20' EASEMENT

SOLID SOD TURF (TYP.)

EXISTING TREE TO BE PRESERVED (TYP.)

CONCRETE MOW STRIP

EXISTING TREE TO BE REMOVED (TYP.)

EXISTING TREE TO BE PRESERVED (TYP.)

10' WATER MAIN EASEMENT

CONCRETE PAVERS, TYPICAL, REFERENCE CIVIL ENGINEER'S DRAWINGS

CURB RAMPS, REFERENCE CIVIL ENGINEER'S DRAWINGS

HYDROMULCH TURF (TYP.)

CONCRETE WALK, REFERENCE CIVIL ENGINEER'S DRAWINGS

CONCRETE PAVERS, REFERENCE CIVIL ENGINEER'S DRAWINGS

TYP. OF 5

SEE DET FOR CONNECTION TO WATER

EB Shrubs

Shrubs

SOLID SOD TURF (TYP.)

HYDROMULCH TURF (TYP.)

EXISTING TREE TO BE PRESERVED (TYP.)

20' WATER EASEMENT

NOTE:
ALL TREES MUST BE A MINIMUM OF 3' OFF THE EDGE OF NICE A BIKE TRAILS PER AASHTO STANDARDS.

1 Spring Valley Rd Planting Plan (Sta 18+20 - 24+40)
PLAN

SCALE: 1"=20' NORTH

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

LANDSCAPE PLANTING PLAN

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
D10438	MM	SA	AUGUST 2010		LP 1.2

SHEET 94 OF 163

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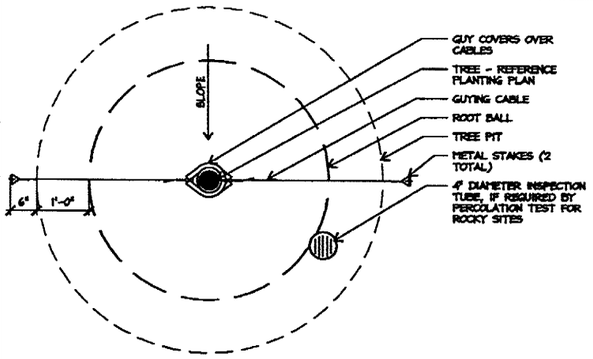
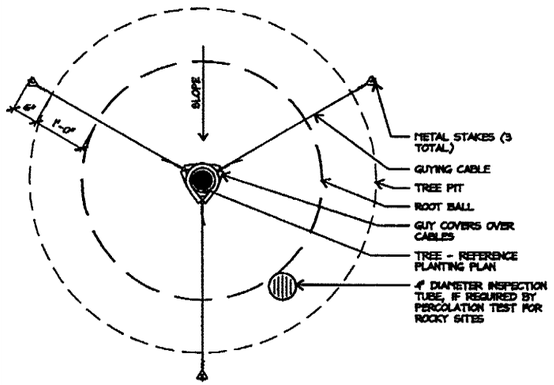
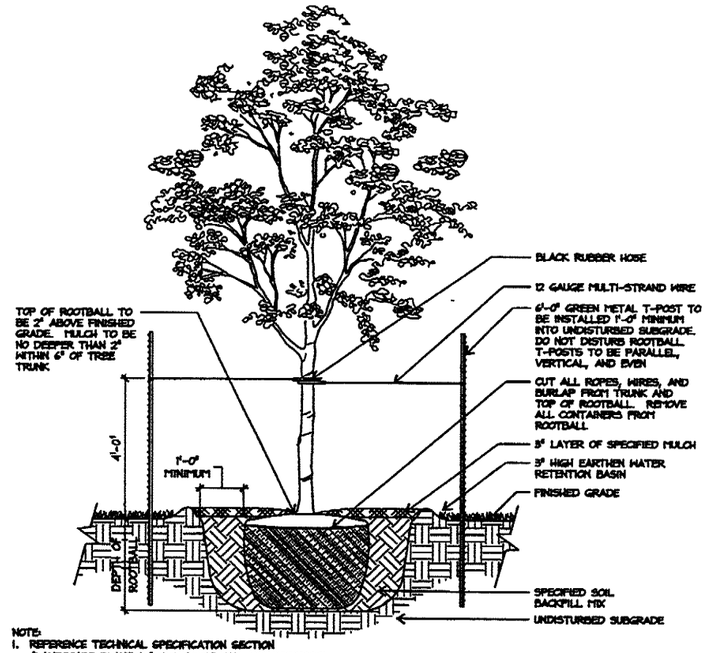


4 <3" TREE STAKING
PLAN — SCALE: 3/4"=1'-0"

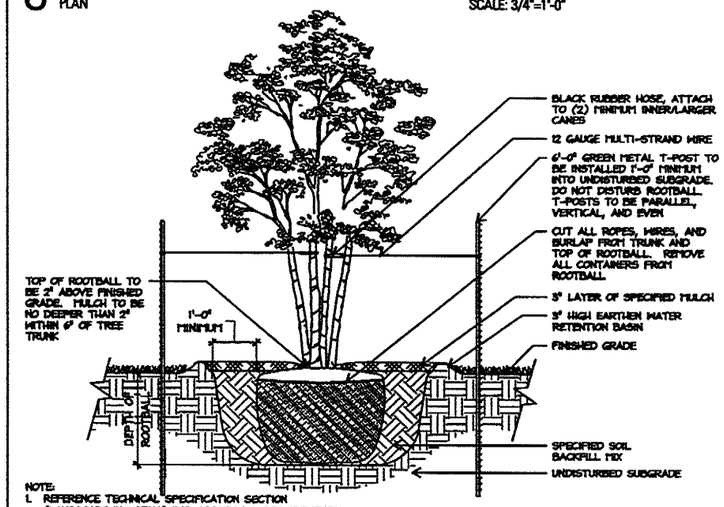


3 >3" TREE STAKING
PLAN — SCALE: 3/4"=1'-0"



NOTE:
1. REFERENCE TECHNICAL SPECIFICATION SECTION "LANDSCAPE PLANTING" FOR ADDITIONAL REQUIREMENTS
2. TREES LESS THAN 4" CALIPER - (2) T-POSTS
   TREES 4" CALIPER AND GREATER - (3) T-POSTS

1 TREE PLANTING - STANDARD TRUNK
ELEVATION — SCALE: 1/2"=1'-0"



NOTE:
1. REFERENCE TECHNICAL SPECIFICATION SECTION "LANDSCAPE PLANTING" FOR ADDITIONAL REQUIREMENTS
2. TREES LESS THAN 6' HEIGHT - (2) T-POSTS
   TREES 6' HEIGHT AND GREATER - (3) T-POSTS

2 TREE PLANTING - MULTI TRUNK
ELEVATION — SCALE: 1/2"=1'-0"

TREES

	SYMBOL	COMMON NAME / BOTANICAL NAME	SIZE	REMARKS
65	FP	URBANITE ASH *Fraxinus pennsylvanica 'Urbanite'*	4" cal; min 14' Ht; min 6' sprd., 100 gal.	Container grown; straight trunk with full and uniform canopy.
13	QV	MULTI-TRUNK LIVE OAK *Quercus virginiana*	4" cal; min 14' Ht; min 6' sprd., 100 gal.	Container grown; straight trunk with full and uniform canopy.
12	UC	CEDAR ELM *Ulmus crassifolia*	4" cal; min 14' Ht; min 6' sprd., 200 gal.	Container grown; straight trunk with full and uniform canopy.
15	TD	BALD CYPRESS *Taxodium distichum*	4" cal; min 16' Ht; min 6' sprd., 100 gal.	Container grown; straight trunk with full and uniform canopy.

ORNAMENTAL TREES

	SYMBOL	COMMON NAME / BOTANICAL NAME	SIZE	REMARKS
62	LI	CRAPE MYRTLE *Lagerstroemia Indica 'Natchez'*	4.5" cal; min 12' Ht; min 6' sprd.	Single trunk 65 gal.; straight trunk with full and uniform canopy.

SHRUBS

SYMBOL	COMMON NAME / BOTANICAL NAME	SIZE	REMARKS
MC	GULF MUHLY *Muhlenbergia capillaris*	3 gal. min ; 2' Ht; min 2' sprd.	Plant 30" o.c.; Full Plant; .18 plants/SF
MF	MEXICAN FEATHER GRASS *Stipa tenuissima*	1 gal. min ; 12' Ht; min 12" sprd.	Plant 15" o.c.; Full Plant; .74 plants/SF
IC	BURFORD HOLLY *Ilex cornuta 'Burfordii'*	5 gal. min ; 2' Ht; min 2' sprd.	Plant as shown on plans Dark Green, Full Plant

GROUNDCOVERS

SYMBOL	COMMON NAME / BOTANICAL NAME	SIZE	REMARKS
SC	SEASONAL COLOR		

LAWN

SYMBOL	COMMON NAME / BOTANICAL NAME	SIZE	REMARKS
SOLID SOD	Turf Sod *St. Augustine 'Raleigh'*		
HYDROMULCH TURF	Turf Hydromulch *Bermuda*		

MATERIALS SCHEDULE

EDGING

KEY	DESCRIPTION /MODEL NUMBER	COLOR	FINISH	CONTACT	REMARKS
EJ	3/16" STEEL EDGING	BLACK	PAINTED		- SUBMIT PRODUCT INFORMATION FOR OWNER APPROVAL PRIOR TO ORDERING

FURNITURE

KEY	DESCRIPTION /MODEL NUMBER	COLOR	FINISH	CONTACT	REMARKS
FJ	BENCH - ARCATA, ALUMINUM W/ DRIFTWOOD POLYSITE SLATS - 74" BACKED - WITH ARMS	TITANIUM FRAME, DRIFTWOOD POLYSITE SLATS	POWDERCOAT FRAME	CONTACT: DIANE COLLIER COMPANY: LANDSCAPE FORMS PHONE: (866) 667-1145	- SUBMIT PRODUCT INFORMATION FOR OWNER APPROVAL PRIOR TO ORDERING - SURFACE MOUNT PER MANUFACTURER'S RECOMMENDATION
F2	TRASH RECEPTACLE - CHASE PARK - SIDE OPENING - WITH LINER	TITANIUM	POWDERCOAT	CONTACT: DIANE COLLIER COMPANY: LANDSCAPE FORMS PHONE: (866) 667-1145	- SUBMIT PRODUCT INFORMATION FOR OWNER APPROVAL PRIOR TO ORDERING - SURFACE MOUNT PER MANUFACTURER'S RECOMMENDATION
F3	DRINKING FOUNTAIN - MDF: 4099 - WITH JUG FILLER - ATTACHED PET FOUNTAIN	STAINLESS STEEL		COMPANY: MOST DEPENDABLE FOUNTAINS, INC PHONE: (800) 552-6831	- SUBMIT PRODUCT INFORMATION FOR OWNER APPROVAL PRIOR TO ORDERING - SURFACE MOUNT PER MANUFACTURER'S RECOMMENDATION
F4	BIKE RACK - BOLA - SURFACE MOUNT	STAINLESS STEEL		CONTACT: DIANE COLLIER COMPANY: LANDSCAPE FORMS PHONE: (866) 667-1145	- SUBMIT PRODUCT INFORMATION FOR OWNER APPROVAL PRIOR TO ORDERING - SURFACE MOUNT PER MANUFACTURER'S RECOMMENDATION

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9/9/10

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

LANDSCAPE MATERIALS AND DETAILS

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
D10438	MM	SA	AUGUST 2010		LP 2.1

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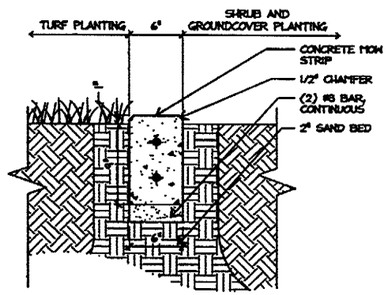
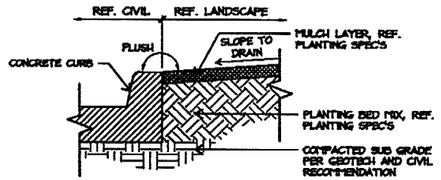


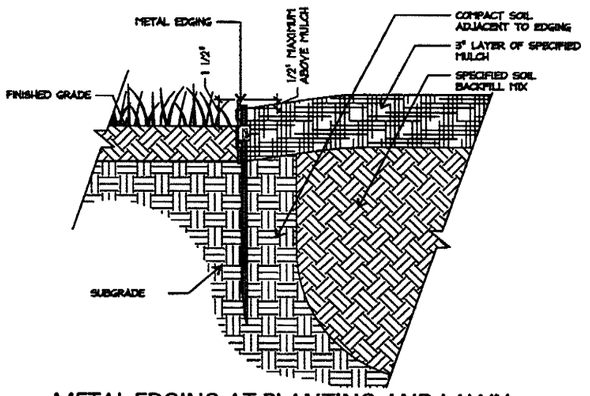
7 CONCRETE MOW STRIP

SECTION SCALE: 1-1/2"=1'-0"



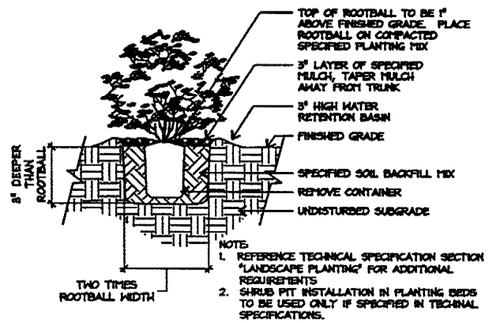
6 PLANTING AT CURB

SECTION SCALE: 1"=1'-0"



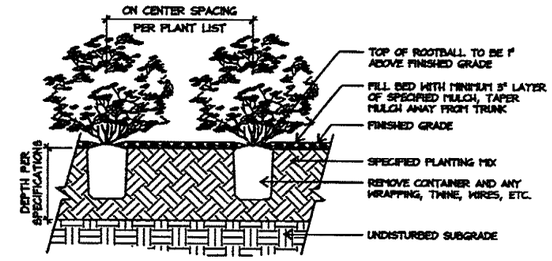
5 METAL EDGING AT PLANTING AND LAWN

SECTION SCALE: 3"=1'-0"



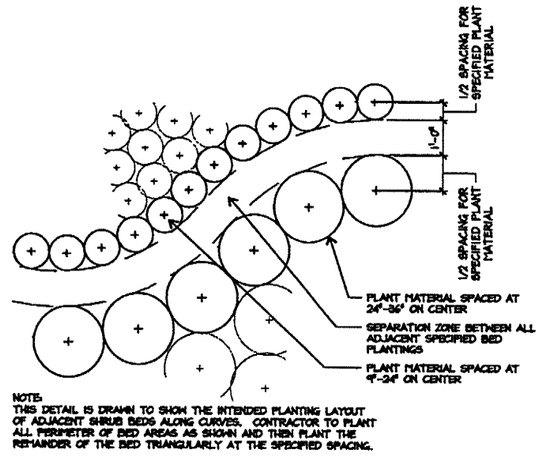
4 INDIVIDUAL SHRUB PLANTING

SECTIONS SCALE: 3/8"=1'-0"



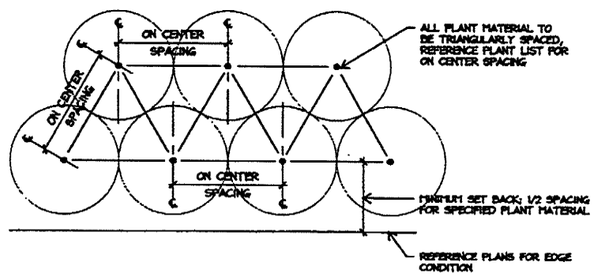
3 SHRUB BED PLANTING

SECTION SCALE: 3/8"=1'-0"



2 CURVED BED LAYOUT

PLAN SCALE: 1/2"=1'-0"



1 PLANT SPACING DIAGRAM

PLAN SCALE: 1/2"=1'-0"

LANDSCAPE PLANTING NOTES:

1) THE CONTRACTOR SHALL RECEIVE THE SITE AT APPROXIMATELY FINAL GRADE. ALL SLOPES SHALL BE SMOOTH AND UNIFORM WITH A MAXIMUM SLOPE OF 3:1 UNLESS OTHERWISE NOTED. TIE INTO EXISTING ADJACENT GRADES SMOOTHLY AND FINE GRADE FOR POSITIVE DRAINAGE AND TO PREVENT WATER FROM STANDING. CUT SWALES TO DIRECT WATER AWAY FROM ALL STRUCTURES AND PROPERTY LINES, AND TOWARDS STORM SEWER INLETS. DO NOT DRAIN ANY WATER TOWARDS LOTS/EASEMENTS. THE FINAL LOCATION AND HEIGHT OF BERMS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.

2) TREE PLANTING: REFERENCE SPECIFICATIONS AND DETAILS FOR PLANTING REQUIREMENTS, MATERIALS, AND EXECUTION, (INCLUDING STAKING METHODS, PLANT PIT DIMENSIONS, AND BACKFILL REQUIREMENTS.) REFERENCE DETAILS FOR PROPER STAKING METHOD, STAKE SIZE AND COMPANY INFORMATION.

BACKFILL ALL TREE PITS WITH SPECIFIED PLANTING MIX AND INCORPORATE 5 LBS OF 13-13-13 FERTILIZER PER CU. YD. OF MIX INTO ALL TREE PITS. ALL TREE WATER RETENTION BASINS SHALL RECEIVE MIN. 3" DEEP COMPOSTED HARDWOOD BARK MULCH.

3) MACHINE MOVE OR HAND DUG TREES: ALL TREES TO BE MACHINE MOVED OR HAND DUG DIRECTLY FROM SITE SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO RELOCATION. COORDINATE TREE PRUNING TO BALANCE ROOT LOSS WITH LANDSCAPE ARCHITECT. TREES TO BE MECHANICALLY TRANSPLANTED USING TREE SPADE MUST ALLOW 9" OF ROOTBALL PER CALIPER INCH OF TREE.

SET TREE STRAIGHT AND PLUMB, AND FILL ANY AIR SPACES AROUND TREE WITH SPECIFIED SAND OR SANDY LOAM TOPSOIL. WATER IN TO DISPLACE AIR POCKETS. INSTALL 3" HIGH WATER RETENTION BASIN PER SPECIFICATIONS WITH 2" DEEP COMPOSTED BARK MULCH AND WATER THE SPADED TREES THE DAY OF TRANSPLANTING.

4) TREES SHALL BE LOCATED A MINIMUM OF 5' - 0" FROM WALLS, OVERHEADS, WALKS, EDGING, CURBS AND OTHER TREES WITHIN THE PROJECT. IF CONFLICTS ARISE BETWEEN THE SIZE OF AREAS AND PLANS, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT FOR RESOLUTION. FAILURE TO MAKE SUCH CONFLICTS KNOWN TO THE LANDSCAPE ARCHITECT MAY RESULT IN THE CONTRACTOR'S LIABILITY TO RELOCATE MATERIALS.

5) ALL PLANT MATERIALS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. THE FINAL LOCATION OF ALL PLANT MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT 48 HOURS PRIOR TO COMMENCEMENT OF WORK TO COORDINATE PROJECT INSPECTION SCHEDULES. ALL MATERIAL SHALL BE MAINTAINED IN A HEALTHY AND GROWING CONDITION, AND MUST BE REPLACED WITH PLANT MATERIAL OF SIMILAR VARIETY AND SIZE IF DAMAGED DESTROYED, OR REMOVED.

6) LAWN INSTALLATION: PRIOR TO APPLICATION OF HYDROMULCH OR SOD, THE CONTRACTOR SHALL APPLY CONTACT HERBICIDE (RECOMMENDED MIXTURE OF ROUNDUP AND ROUNDUP) TO REMOVE ALL EXISTING WEEDS AS NECESSARY, AND SCARIFY EXISTING SOIL TO SPECIFIED DEPTHS. REMOVE ALL LUMPS, CLODS, TRASH AND STICKS GREATER THAN 1". FINE GRADE TO PROVIDE POSITIVE DRAINAGE AND SMOOTH LAWN AREAS AND CUT SWALES AS NECESSARY TO ENSURE NO PONDING OF WATER. FINISHED GRADE OF LAWN AND PLANTING BED AREAS TO BE MINIMUM 1/2" BELOW FINISHED GRADE OF ADJACENT PAVEMENT.

7) ALL QUANTITIES ON THIS PLAN ARE FOR INFORMATION ONLY (PLANT SPACING IS AS INDICATED ON 'PLANT SCHEDULE' UNLESS OTHERWISE NOTED). IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE FULL COVERAGE IN ALL PLANTING AREAS AS SPECIFIED IN THE PLANT SCHEDULE REMARKS.

8) THE CONTRACTOR SHALL PROVIDE THE SOILS TESTING LAB SOIL SAMPLES. A MINIMUM OF TWO SAMPLES FROM EACH DIFFERENT SOIL AREA AND FROM EACH IMPORT SOIL SOURCE IS REQUIRED. VERIFY APPROPRIATE QUANTITY OF SAMPLES WITH THE LANDSCAPE ARCHITECT AND AGRONOMIST. SAMPLES SHALL THEN BE TESTED AND ANALYZED FOR AGRICULTURAL SUITABILITY AND FERTILITY BY AN ACCREDITED SOIL TESTING LABORATORY. ANALYSIS SHALL INCLUDE REVIEW AND COORDINATION WITH SPECIFICATIONS AND RECOMMENDATIONS FOR SOIL PREPARATION AND BACKFILL MIX. SUBMIT SOILS ANALYSES TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO SOIL PREPARATION. THIS REQUIREMENT APPLIES TO ALL SOILS AND CONDITIONS WITHIN THIS PROJECT INCLUDING IMPORT SOILS, AND ON GRADE SOILS. REFER TO SPECIFICATIONS.

9) THE CONTRACTOR SHALL APPLY RECOMMENDED PRE-EMERGENT HERBICIDE FOR PREVENTION OF NUTGRASS AND WEEDS UPON ESTABLISHMENT OF BERMUDA LAWN APPROXIMATELY ONE MONTH AFTER HYDROMULCH APPLICATION. FERTILIZE AT SPECIFIED RATES MONTHLY DURING 90 DAY MAINTENANCE PERIOD.

GENERAL LANDSCAPE NOTES:

1) THE CONTRACTOR SHALL BE FAMILIAR WITH EXISTING SITE CONDITIONS AND UNDERGROUND UTILITIES, SMALL PIPES AND STRUCTURES. THE CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO BODILY INJURY AND/OR DAMAGE TO OWNER'S PROPERTY OR SAID UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITY COMPANIES BEFORE EXCAVATION.

2) THE CONTRACTOR SHALL LOCATE AND VERIFY THE CONDITION OF UTILITIES PRIOR TO ANY EXCAVATION. EXTREME CARE SHALL BE EXERCISED IN EXCAVATING AND WORKING NEAR EXISTING UTILITIES. THE CONTRACTOR SHALL HAND DIG PLANTING PITS AND HAND RAKE LAWN AREAS AS REQUIRED.

3) ALL CONFLICTING INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.

4) THE CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY HAVE NOT BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.

5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH HIS SUBCONTRACTORS TO ACCOMPLISH HIS SCOPE OF WORK. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES WORKING ON THE SITE SIMULTANEOUSLY.

6) THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK TO COORDINATE PROJECT INSPECTION SCHEDULES.

7) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF EXISTING CONDITIONS, AND SHALL PERFORM FIELD MEASUREMENTS PRIOR TO FABRICATION AND/OR PURCHASE OF ANY MATERIAL. THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT SHOULD EXISTING CONDITIONS BE DIFFERENT FROM THE DESIGN DRAWINGS FOR THIS PROJECT. ALL CONFLICTS ARISING DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY AND EXPENSE OF THE CONTRACTOR.

8) ANY REQUIRED CHANGES TO THE DRAWINGS RESULTING FROM THE ACCEPTANCE OF THE CONTRACTOR'S ALTERNATES AND/OR SUBSTITUTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT AND THE OWNER FOR APPROVAL.

9) THE CONTRACTOR SHALL COORDINATE THE STORAGE OF MATERIALS, PARKING OF VEHICLES AND RESTRICTIONS OF WORK AND ACCESS WITH THE OWNER. UNDER NO CIRCUMSTANCES SHALL ANY CONTRACTOR STORE MATERIALS OR PARK VEHICLES UNDER THE CANOPY OF EXISTING TREES.

10) THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, ORDINANCES & CODE REQUIREMENTS. REQUIRED PERMITS SHALL BE OBTAINED BY THE CONTRACTOR.

11) THE CONTRACTOR SHALL PROVIDE UNIT PRICES BASED UPON THE QUANTITIES SHOWN WITHIN THE DOCUMENTS. FIELD CONDITIONS MAY REVISE ACTUAL LOCATION, INCREASING OR DECREASING THE EXTENT OF WORK PERFORMED. CHANGES TO THE EXTENT OF WORK RESULTING IN AN INCREASE OR DECREASE WILL BE BASED ON UNIT PRICES AND PERFORMED SUBJECT TO APPROVAL OF THE OWNER AND THE LANDSCAPE ARCHITECT IN THE FORM OF A CHANGE ORDER.

12) UNIT PRICES SHALL NOT ONLY INCLUDE THE COST OF THE ITEM BUT ALSO ALL LABOR, EQUIPMENT, AND OTHER MATERIALS (I.E. BACKFILL MIX, MULCH, STEEL EDGING, ETC.) ASSOCIATED WITH AND NECESSARY TO DELIVER THE ITEM COMPLETE AS DOCUMENTED IN THE DRAWINGS AND SPECIFICATIONS.

13) THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK AS SHOWN AND NOTED ON THE DRAWINGS, UNLESS OTHERWISE NOTED.

14) ALL CONTRACTORS AND SUBCONTRACTORS ARE RESPONSIBLE FOR REMOVAL OF TRASH AND REPAIR OF HAZARDOUS CONDITIONS (I.E. TOOLS, OPEN HOLES, ETC.) ON A DAILY BASIS BY END OF WORK DAY.

15) UPON COMPLETION OF CONSTRUCTION AND PRIOR TO FINAL APPROVAL, THE CONTRACTOR SHALL THOROUGHLY CLEAN UP THE PROJECT SITE OF ALL TRASH, SCRAPS, BRICK, ROCKS, MORTAR, ETC. REPAIR ALL DAMAGE TO FINISH GRADE INCLUDING TAILINGS FROM EXCAVATIONS, WHEEL RUTS OR ANY SETTLING OR EROSION OCCURRING PRIOR TO COMPLETION.

REGISTERED LANDSCAPE ARCHITECT — STATE OF TEXAS — 2906

6/10/10

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

LANDSCAPE DETAILS AND NOTES

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
D10438	MM	SA	JULY 2010		LP 2.2

SHEET 96 OF 163

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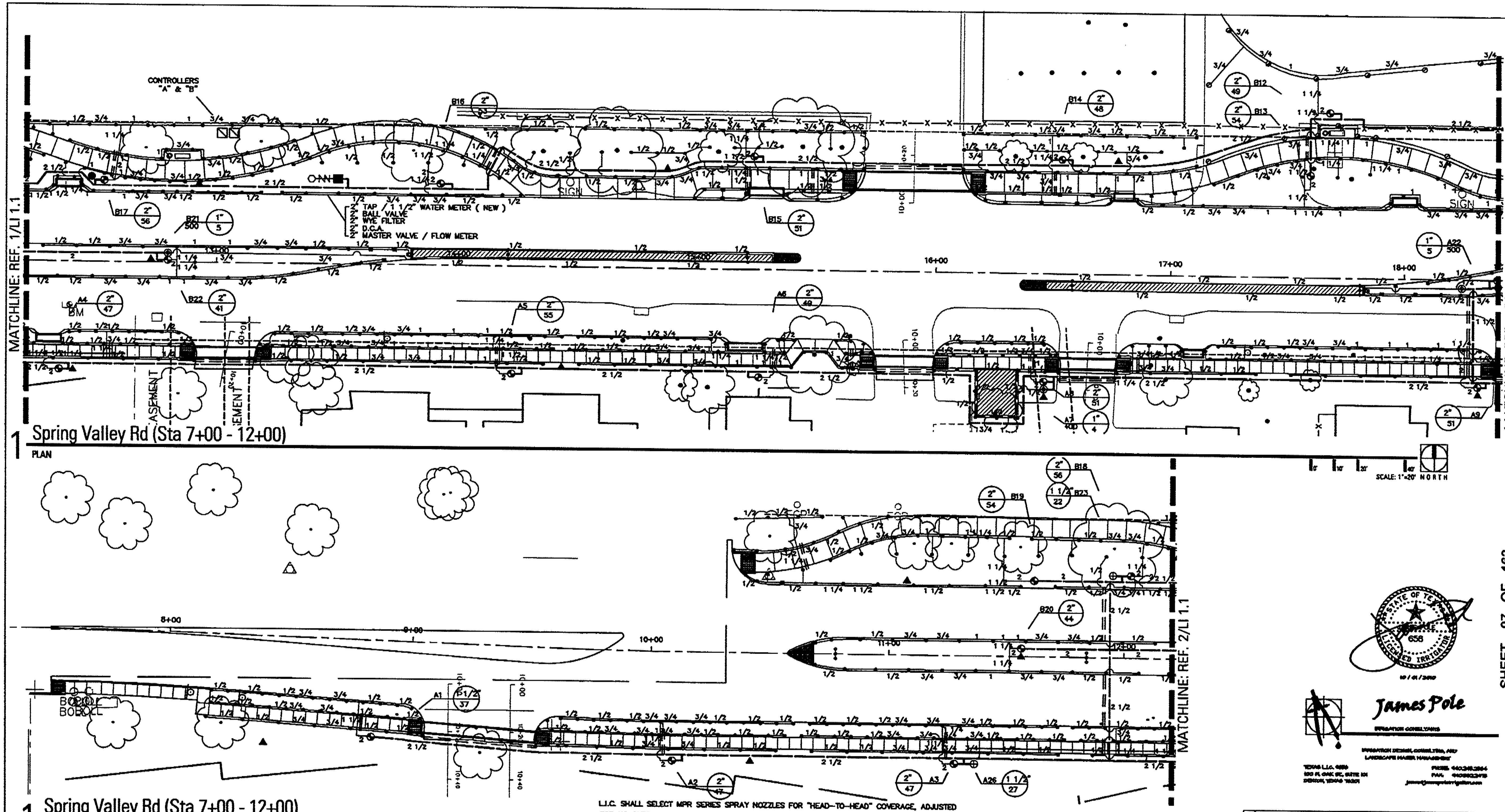

1 Spring Valley Rd (Sta 7+00 - 12+00)

PLAN

1 Spring Valley Rd (Sta 7+00 - 12+00)

PLAN

L.I.C. SHALL SELECT MPR SERIES SPRAY NOZZLES FOR "HEAD-TO-HEAD" COVERAGE, ADJUSTED FOR NO OVERSPRAY ONTO WALLS AND WALKS. NO OVERSPRAY INTO STREETS IS PERMITTED.

LEGEND

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- RAINBIRD 1804-PRS SERIES POP UP SPRAY HEAD WITH MPR SERIES NOZZLE AS NOTED BELOW
- NETAFIM TECHLINE CV SERIES DRIP TUBE IN SHRUB BED INSTALLED AT 2" DEPTH SEE INSTALLATION NOTE #16 REGARDING DRIP TUBE LAYOUT IN SHRUB BEDS.
- HUNTER I-20 4" POP UP ROTARY HEAD, PART CIRCLE, #2.0 NOZZLE UNLESS NOTED OTHERWISE
- HUNTER I-20 4" POP UP ROTARY HEAD, PART CIRCLE, #3.0 BLUE NOZZLE UNLESS NOTED OTHERWISE
- HUNTER I-20 4" POP UP ROTARY HEAD, FULL CIRCLE, #6.0 BLUE NOZZLE UNLESS NOTED OTHERWISE
- IRRITROL 200 B SERIES ELECTRIC REMOTE CONTROL VALVE, WITH SAME SIZE PVC BALL VALVE
- IRRITROL 200 B SERIES ELECTRIC REMOTE CONTROL, "TREE BUBBLER ZONE" VALVE WITH SAME SIZE PVC BALL VALVE SEE INSTALLATION NOTE #13 REGARDING TREE BUBBLER LATERAL PIPE
- IRRITROL 200 B SERIES ELECTRIC REMOTE CONTROL VALVE WITH SAME SIZE PVC BALL VALVE, OMNI-REG PRESSURE REGULATOR AND SAME SIZE NETAFIM DISK FILTER (120 MESH) - FOR "DRIP" ZONES. SET REGULATOR AT 30 P.S.I.
- BUCKNER V075 QUICK COUPLING VALVE WITH LOCKING PURPLE COVER AND 3/4" PVC BALL VALVE
- SPEARS T-HANDLE PVC BALL VALVE, LOCATED EVERY 200 LINEAR FEET ALONG MAINLINE PIPE.
- WATTS 007 SERIES D.C.A. INSTALLED PER CITY CODE, WITH SAME SIZE WILKINS 850 SERIES BRONZE BALL VALVE AND WILKINS YB SERIES BRONZE WYE FILTER WITH 20 MESH STAINLESS STEEL SCREEN
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- IRRIGATION WATER METER AND TAP, SIZE AS NOTED ON THE PLAN
- RAINMASTER 30 STATION EVOLUTION DX-2 PEDESTAL MOUNT CONTROLLER WITH 36" x 36" x 6" CONCRETE BASE PAD AND MINI-CLIK RAIN / FREEZE SENSOR. LOCATE SENSOR AS FIELD DIRECTED BY THE LANDSCAPE ARCHITECT REFERENCE SHEET LI1.4 FOR ADDITIONAL SPECIFICATIONS FOR IRRIGATION CONTROLLERS
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- ONE 2" SCH. 40 SLEEVE PIPE WITH ONE 4" CLASS 200 PVC SLEEVE PIPE UNLESS NOTED OTHERWISE

SHEET 97 OF 163

10/01/2010

James Pole

IRRIGATION CONSULTANTS

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

LANDSCAPE IRRIGATION PLAN

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
D10436	JP	JP	OCTOBER 2010		LI 1.1

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MATCHLINE: REF. 2/LI 1.1

LEGEND

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L.I.C. SHALL SELECT MPR SERIES SPRAY NOZZLES FOR "HEAD–TO–HEAD" COVERAGE, ADJUSTED FOR NO OVERSPRAY ONTO WALLS AND WALKS. NO OVERSPRAY INTO STREETS IS PERMITTED.

1 Spring Valley Rd (Sta 18+20 - 24+40)
PLAN

2" TAP / 1 1/2" WATER METER (EXISTING)
2" BALL VALVE
2" WYE FILTER
2" D.C.A.
2" MASTER VALVE / FLOW METER

SCALE: 1"=20' NORTH

STATE OF TEXAS LICENSED IRRIGATOR 658
10 / 01 / 2010

James Pole
IRRIGATION CONSULTANTS
IRRIGATION DESIGN, CONSULTING, AND LANDSCAPE WATER MANAGEMENT

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

LANDSCAPE IRRIGATION PLAN

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
1010-06	JP	JP	OCTOBER 2010		LI 1.2

SHEET 98 OF 163

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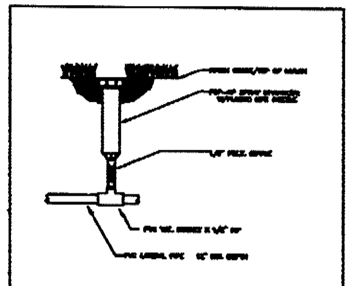
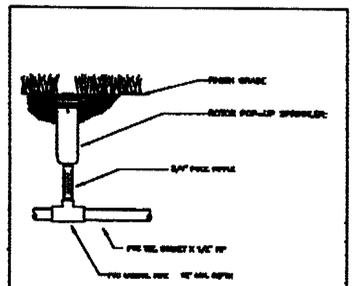
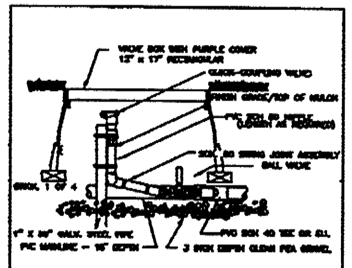


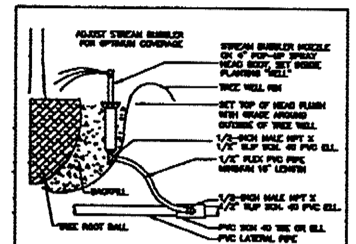
POP-UP SPRAY HEAD



ROTOR POP-UP SPRINKLER

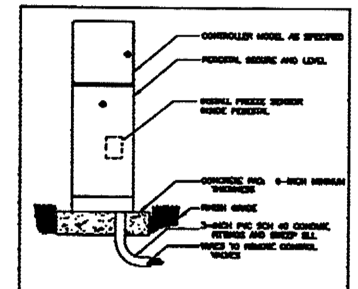


QUICK COUPLER VALVE WITH PVC BALL VALVE

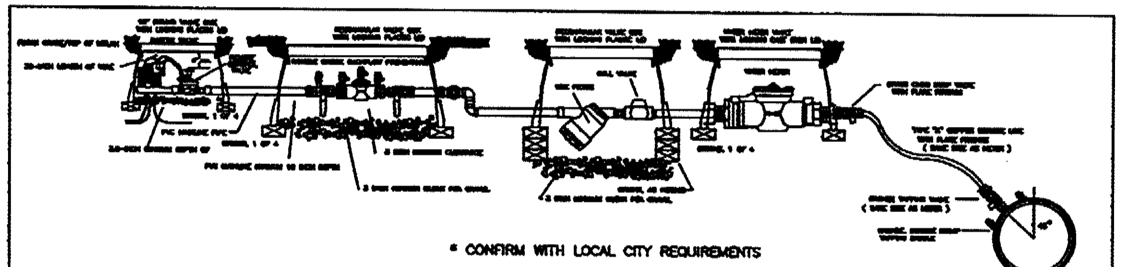


INCLUDE TWO BUBBLER HEADS, SET ON OPPOSITE SIDES OF ROOT BALL

TREE BUBBLER

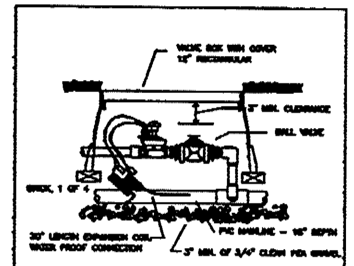


PEDESTAL MOUNT CONTROLLER

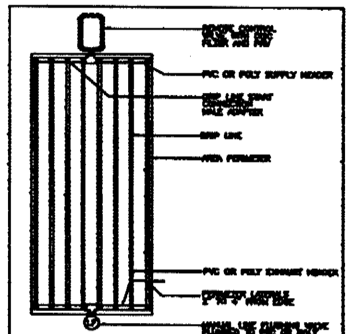


* CONFIRM WITH LOCAL CITY REQUIREMENTS

WATER TAP WITH METER, BALL VALVE, WYE FILTER, BACKFLOW ASSEMBLY, AND MASTER VALVE

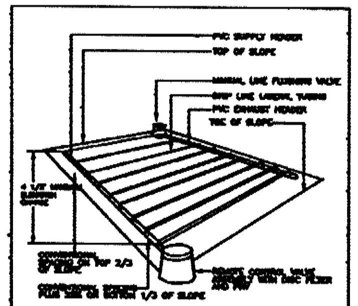


REMOTE CONTROL VALVE



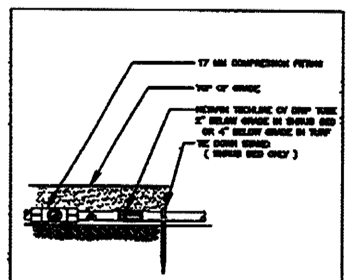
SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.
USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON ZONES SMALLER GRIDS SMALLER THAN 5 GPM

DRIP END FEED LAYOUT

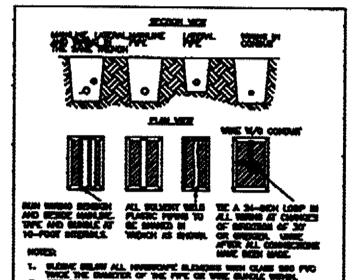


ALIGN DRIP LINE LATERALS PARALLEL TO SLOPE CONTOURS
SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.
USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON ZONES SMALLER GRIDS SMALLER THAN 5 GPM

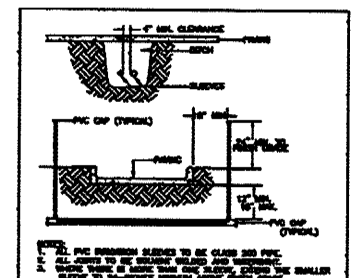
DRIP SLOPE FEED LAYOUT



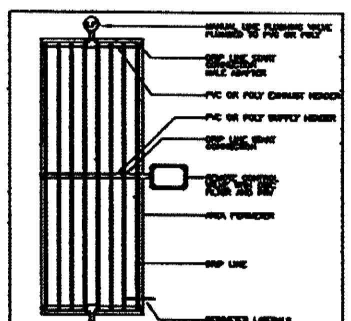
DRIP TUBE



TRENCH DETAIL



SLEEVING



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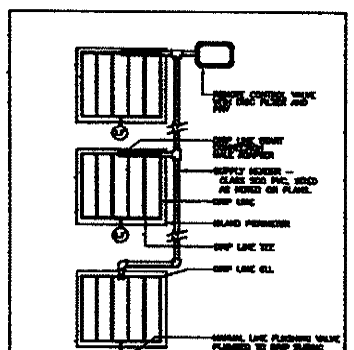
USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON ZONES SMALLER GRIDS SMALLER THAN 5 GPM

DRIP CENTER FEED LAYOUT



USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON ZONES SMALLER GRIDS SMALLER THAN 5 GPM

DRIP ISLAND LAYOUT

LEGEND

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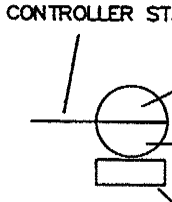
CONTROLLER STATION



INSTALLATION NOTES

L.I.C. SHALL REFER TO AND FOLLOW THE TOWN OF ADDISON IRRIGATION REQUIREMENTS, REVISED 04 / 29 / 2010

1. COORDINATE IRRIGATION INSTALLATION WITH PLANTING PLAN AND SITE CONDITIONS TO PROVIDE COMPLETE COVERAGE WITH MINIMUM OVERSPRAY. THE IRRIGATION CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO ENSURE PROPER COVERAGE AT NO ADDITIONAL COST TO THE OWNER.
2. THE IRRIGATION CONTRACTOR SHALL COMPLY WITH ALL LOCAL AND STATE MANDATED IRRIGATION ORDINANCES AND CODES, AND WILL SECURE ALL REQUIRED PERMITS. L.I.C. SHALL PAY ANY ASSOCIATED FEES UNLESS OTHERWISE NOTED. ALL LOCAL CODES SHALL PREVAIL OVER ANY DISCREPANCIES HEREIN AND SHALL BE ADDRESSED BEFORE ANY CONSTRUCTION BEGINS.
3. CONFIRM MINIMUM STATIC WATER PRESSURE OF 60 PSI AT THE HIGHEST ELEVATION OF THE SYSTEM LIMITS, AND MAXIMUM STATIC WATER PRESSURE OF 90 P.S.I. AT THE LOWEST ELEVATION OF THE SYSTEM LIMITS AT LEAST 7 DAYS BEFORE BEGINNING WORK. IF STATIC WATER PRESSURE IS OUTSIDE THE RANGE STATED ABOVE, DO NOT PROCEED UNTIL DIRECTED BY THE LANDSCAPE ARCHITECT.
4. LATERAL PIPE SHALL BE INSTALLED AT A MINIMUM DEPTH OF 12 INCHES. MAINLINE PIPE AND WIRES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 18 INCHES. NO MACHINE TRENCHING SHALL BE PERMITTED WITHIN EXISTING TREE ROOT ZONES. WHEN HAND – TRENCHING WITHIN EXISTING TREE ROOT ZONES, NO ROOTS LARGER THAN 1" DIAMETER SHALL BE CUT.
5. UNSLEEVED PIPES MAY BE SHOWN UNDER PAVEMENT FOR GRAPHIC CLARITY ONLY. INSTALL THESE PIPES IN ADJACENT LANDSCAPED AREAS.
6. ELECTRIC POWER, AND DATA PHONE LINE SHALL BE PROVIDED WITHIN FIVE FEET OF CONTROLLER LOCATION BY GENERAL CONTRACTOR. L.I.C. TO PROVIDE FINAL HARD–WIRE CONNECTIONS TO CONTROLLERS.
7. 24 VOLT VALVE WIRE SHALL BE A MINIMUM OF #14 GAUGE, U.F. APPROVED FOR DIRECT BURIAL, SINGLE CONDUCTOR "IRRIGATION WIRE". WIRE SPLICES SHALL INCLUDE DBY CONNECTORS AS MANUFACTURED BY 3M COMPANY. ALL FIELD SPLICES SHALL BE LOCATED IN A ROUND VALVE BOX OF SUFFICIENT SIZE TO ALLOW INSPECTION.
8. VALVE BOXES SHALL BE INSTALLED FLUSH WITH GRADE, SUPPORTED BY BRICKS IF NEEDED, WITH 3 INCHES OF CLEAN PEA GRAVEL LOCATED BELOW THE VALVE. USE 12" x 17" RECTANGULAR VALVE BOXES FOR QUICK COUPLERS AND FOR ALL ELECTRIC VALVES.
   D.C.A., WITH UPSTREAM BALL VALVE AND WYE FILTER SHALL BE BOXED AND LOCATED ACCORDING TO LOCAL CODE.
9. USE RIGID SCH. 80 PVC SWING JOINT ASSEMBLIES TO CONNECT ALL ROTARY HEADS AND QUICK COUPLERS.
10. ALL SPRAY HEADS SHALL BE CONNECTED WITH A 6" LENGTH 1/2" POLY. NIPPLE. ALL ROTARY HEADS SHALL BE CONNECTED WITH A 6" LENGTH 3/4" POLY. NIPPLE.
11. PROVIDE ONE QUICK COUPLER KEY WITH SWIVEL HOSE ELL FOR EVERY SIX Q.C. VALVES. (MINIMUM ONE SET).
12. CONTRACTOR IS TO CONTACT APPROPRIATE AUTHORITIES AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
13. LATERAL PIPE TO TREE STREAM BUBBLER HEADS IS OMITTED FOR GRAPHIC CLARITY. CONNECT TREE BUBBLER HEADS TO VALVES AS SHOWN WITH CLASS 200 PVC PIPE SIZED TO ALLOW A MAXIMUM FLOW VELOCITY OF 5 FEET PER SECOND
14. THE PROPOSED LOCATIONS OF ALL ABOVE– GROUND EQUIPMENT INCLUDING BACKFLOW PREVENTORS, CONTROLLERS AND WEATHER SENSORS SHALL BE STAKED BY THE CONTRACTOR FOR APPROVAL BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE BEFORE THESE ITEMS ARE INSTALLED.
15. ALL HEADS SHALL BE INSTALLED A MINIMUM OF 4" FROM PAVEMENT EDGES.
    FINAL HEAD ADJUSTMENTS BY THE CONTRACTOR SHALL INCLUDE THE ADDITION OF CHECK VALVES WHERE NEEDED TO PREVENT EXCESSIVE LOW HEAD DRAINAGE. THE CONTRACTOR SHALL BUDGET FOR, AND INSTALL CHECK VALVES FOR UP 10 % OF THE TOTAL NUMBER OF HEADS WHEN NEEDED, WITH NO ADDITIONAL COST TO THE OWNER.
16. WHERE SHOWN ON THE PLANS, MASS SHRUB / GROUNDCOVER BEDS SHALL INCLUDE NETAFIM TECHLINE CV SERIES DRIP TUBE WITH PRE–INSTALLED .9 GPH DRIP EMITTERS AT 12" INTERVALS (TLCV9–12), INSTALLED IN CENTER–FED GRIDS WITH ROWS SPACED 12" APART. INDIVIDUAL DRIP TUBE RUNS SHALL NOT EXCEED 150 L.F. PVC LATERAL "TRUNK" LINES SHALL BE INSTALLED 10" DEEP. DRIP TUBE SHALL BE SET 2" BELOW FINISHED SOIL GRADE (NOT INCLUDING MULCH LAYER), SECURELY STAKED EVERY 18". NETAFIM #TL050MFV–1 FLUSH VALVES SHALL BE INSTALLED AT THE FARTHEST POINTS FROM THE ZONE VALVE. USE 17 MM BARBED FITTINGS FOR DRIP LINE CONNECTIONS, SET THE MAXIMUM OPERATING PRESSURE AT 30 PSI. TECHLINE CV SHALL BE INSTALLED PERPENDICULAR TO SLOPE FACE. INSTALL TLCV IN–LINE CHECK VALVES FOR EVERY 4.5 FEET OF DRIP LINE ELEVATION CHANGE WITHIN THE ZONE. USE NETAFIM STAPLES (#TLS6) TO SECURE TUBING EVERY 18" EACH DRIP ZONE SHALL INCLUDE ONE MAINTENANCE "FLAG" WHICH SHALL CONSIST OF A 12" POP–UP SPRAY HEAD AND COMPLETELY CLOSED SPRAY NOZZLE. THE POP–UP HEAD SHALL BE CONNECTED TO THE DRIP ZONE PIPE, SET FLUSH WITH GRADE, AND LOCATED AT THE FARTHERST DISTANCE FROM THE DRIP VALVE ASSEMBLY. INSTALL THE "FLAG" HEAD ADJACENT TO EDGING OR IN LOW PLANTINGS FOR EASE OF VIEWING.

658
10 / 01 / 2010
James Pole

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

LANDSCAPE IRRIGATION DETAILS AND NOTES

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
D10436	JP	JP	OCTOBER 2010		LI 1.3

Town of Addison Irrigation Specifications

Revised 04/29/10

These revised specifications supersede any and all others. However, any discrepancies between the approved construction plans and those of the Town MUST be brought to the attention of the Town's designated representative for a final determination. The contractor will present the Town's representative an as-built plan at the final walk-through, along with three Bucker VO75 quick coupling keys with hose-end swivels.

1. All work is to be accomplished by or directly supervised at all times by an on-site Irrigator licensed by the State of Texas.

2. The contractor shall verify the water pressure before the installation begins. If the static pressure is different than that of the design pressure, contact the designer and Town's representative immediately so changes can be made. Send a fax to the Parks dept. at 972-450-2834 with the current dated and timed static pressure reading. Design head to head with no single head coverage. Use appropriate size nozzles for a given landscape area so as not to spray onto or over paved surfaces or structures. Do not exceed manufacturer's recommendations.

3. The irrigation installer is responsible for resetting head and/or box height due to settling and after turf, groundcover, shrubs, trees, and mulch is added to the landscape areas. The irrigation contractor must supply a workmanship warranty for (1) year from date of acceptance.

4. Plans are diagrammatic and field adjustments are often necessary. For this reason, prior to trenching, valve locations and head layout with flags needs to be done and approved by the Town's irrigation inspector. Not doing so may result in the relocation of heads and/or valves at the irrigation contractor's expense.

5. **Water Taps:** Water taps will be 2" in size. Note: This does not imply that a 2" meter will be used; see Water Meters below. All parts must conform to the Town of Addison Water Department specifications and are the responsibility of the irritation contractor to provide. Inspection of taps by the Water Department Representative must occur. Excavation and tap permits are required. Contact the Town of Addison Water Department at (972) 450-2871.

6. **Water Meters:** Only meter types approved by the Town of Addison Water Department with an electronic encoder register and touch pad reader and two (2) brass flanges are acceptable. Meter lay lengths must be in accordance with the Town of Addison Water Department's specifications, housed in appropriate size (to be determined by the Town's Irrigation Inspector) concrete box with lid. New stainless steel bolts and nuts must be used in the installation along with new neoprene gaskets. The box should be level with the final grade using concrete pavers to support and prevent sinking. Backfill inside the box, 3" below meter base with at least 6" of fine (1/2") pea gravel. Connection to main must be approved and inspected by the Town's Water Department Inspector and all tap materials are to be purchased at the expense of the contractor and must comply with the Town of Addison's specifications.
Note: Meter size shall not exceed 1 ½" in size unless written approval is given by the Town of Addison Parks Department. All portions of this installation must adhere to the Town of Addison Water Department specifications as well.

7. **Backflow Devices:** Only Watts 007 M series inline check valve assemblies with the stainless steel ball valve handles and nuts are to be used. Irrigation contractor shall provide and install plugs for the test cocks in accordance to the Town of Addison Water Department specifications. Connect the device to the water meter via a separate brass flange, neoprene gasket and stainless steel nuts and bolts. Install to the flange a Teflon taped copper nipple and soldered copper pipe of sufficient length to center the DCA within its housing. The device will be housed in an appropriate size, (to be determined by the Town's Irrigation Inspector) rectangular concrete box with lid using concrete pavers for proper stability and height adjustment. The irrigation contractor shall be responsible for the DCA testing in accordance with State of Texas law, using a Licensed Backflow Assembly Tester registered with the Town of Addison Water Department. Copies of the results must to given to both the Town of Addison Parks and Water Departments.
Note: All portions of this installation must adhere to the Town of Addison Water Department specifications as well.

8. **Sleeves:** All paving must have Town approved sleeve sizes and quantities present. It is the responsibility of the irrigation contractor to notify the Town's Irrigation Inspector of any area where sleeves should be present but are not and provide such materials at his cost. Any paving installed without sleeves will necessitate a bore and subsequent materials at the irrigation contractor's expense. All sleeves 2" and smaller will be Schedule 40 PVC with size and location noted on the plan. Larger sizes will be Class 200. All piping underneath paving, including sidewalks, must be sleeved. All sleeves are to be belled end PVC pipe. A minimum length of 12 inches of sleeve material must extend beyond the pavement.

9. **Glue and Primer:** Use Turftite brand glue on laterals and IPS Grey Heavy Body on main lines and a good quality purple primer on all. Avoid excessive use and wipe excess glue off of all joints and fittings with a clean rag.

10. **Pipe:** All main line pipe 2 inches and smaller is to be Schedule 40 belled PVC; larger sizes are to be Class 200 belled PVC with a minimum depth of 14" and a maximum depth of 16". Put not more than two (2) pipes in any one trench and separate the main line from the lateral line with at least two (2) inch of cover. Class 200 belled PVC lateral piping is to be used with a minimum depth of 12" and a maximum depth of 14".

11. **Fittings:** No crosses are permitted. Separate tees, 45's, elbows and other fittings by at least 12 inches. Reduction tees are preferred over use of single reducer bushings. Multiple reducer bushings will not be accepted. Only Spears and/or Lasco fittings are permitted. Allow 18 inches outside of sleeve before the first fitting. No 45 degree elbows on 1 inch and larger pipe are allowed.

12. **Valves:**

A. **Master Valves:** Every point of connection to the water supply system shall have an Irritrol 200 B series valve as the Master Valve, housed in a standard (large) Armor rectangular plastic valve box with 4 to 6 inches of small (1/2") pea gravel placed underneath the valve in such a manner as to prevent soil infiltration into the box. Use concrete pavers or bricks placed under edges of valve box for stability. Note: Valve box must not rest on pipe. Blue wire shall be used as the station wire for the Master Valve.

B. **Station Valves:** Only Irritrol 200 B series valves are permitted. A Ball Valve will be installed before every station or zone valve. They are to be located within a standard (large) Armor rectangular plastic valve boxes with 4 to 6 inches of (1/2") pea gravel placed underneath the valve in such a manner as to prevent soil infiltration into the box. The pea gravel should
be 2 inches from the bottom of the valve body. A minimum of 3" of valve box must extend below bottom of valve. If necessary, use valve box extensions.

C. **Ball Valves:** Female threaded plastic Spears or Lasco ball valves with positive T-handle cut off must be installed on every 200 feet of mainline for isolation purposes. A ball valve is also required to be installed before every station valves. Use 10" Armor valve box with a minimum of 3" extending below bottom of valve and fill to bottom of valve with ½" pea gravel. Use bricks or concrete box.

D. **Quick Coupler Valves:** Use only Buckner V075 single lug ¾" quick coupling valves with a metal top. They are to be connected to a threaded fitting. Teflon tape and appropriate length of gray schedule 80 nipples and schedule 40 fittings are to be used for the swing joint. Secure to 18 inch by ½ inch steel rebar with a stainless steel worm screw clamp. House QCV in a 10 inch round plastic Armor valve box. Install Spears ball valve prior to each QCV. Bricks or pavers need to be installed under edges of valve boxes for stability. Backfill bottom of box with ½" pea gravel half way up body of valve.

E. **Flowmeters:** Purchase from a Rain Master supplier and install appropriately sized Data Industrial flowmeter. Follow all installation instructions as approved by Rain Master. House in a standard (large) Armor rectangular plastic valve box with 4 to 6 inches of small (1/2") pea gravel placed underneath the valve in such a manner as to prevent soil infiltration into the box. Use concrete pavers or bricks placed under edges of valve box for stability. Note: Valve box must not rest on pipe. The irrigation contractor must also purchase from Rain Master and install shielded Rain Master EV-Cab-Sen flow meter cable and install within continuous ¾" or larger gray PVC conduit with 6 inch or larger J-boxes placed every 200 feet or where 360 degrees of fittings are installed; only sweep fittings are permitted. Only a continuous run of cable is allowed; no splices will be allowed except at the point of connection to the flow meter. Connections at the flow meter must first be soldered and then water proofed within a 3-M DBY connector. Note: Certain Rain Master requirements must also be met regarding installation order and distances of separation between DCA, flow meter, master valve and the first fitting. It is the responsibility of the irrigation contractor to adhere to these requirements. At final walk through, proper operation of the flow meter at the Rain Master controller must be demonstrated by the irrigation contractor.

13. **Heads:** All heads will be installed using polyethylene green nipples (¾"x6" for rotors and ½"x6" for pop-ups) screwed into threaded fittings unless noted otherwise. No swing joints on 4" pop-ups or rotors will be allowed.

A. **Pop-ups** – Only Rainbird 1800 series are permitted. Install ¾ inch above the finished grade.

a. **4 inch pop-ups:** turf, tree bubblers within turf areas (use Hunter PCN 10 bubbler nozzles on spray heads.

b. **6 inch pop-ups** with no side inlet: very low ground cover (less than 6 inches at mature height).

c. **12 inch pop-ups** with side inlet: Ground cover and low growing shrubs. The ground cover and shrubs should not be more than 12" at maturity. The Town Inspector reserves the right to determine if and when side inlets installed using funny pipe verses the bottom inlet will be allowed. When authorized, use Hardie Blue Line Pipe with Toro barb fittings.

B. Bubblers - Use ½" Schedule 80 risers with shrub adapter and Hunter PCN 10, 1 gpm, bubbler nozzles for all tree wells with tree grates. Risers shall be a minimum of 2" below bottom of tree grates with nozzle 2" above mulch. Use (2) bubblers 180-degree opposed.

C. **Rotors** - Only Hunter I-20 Series are permitted, unless noted otherwise. Install ¾" above finished grade.

14. **Drip:** *Use Netafim products only*. Use 0.9 gph pressure compensated self flushing dripper tubing with 12" emitter spacing. Install appropriate pressure reducer and filter in one standard rectangular plastic valve box and a ball valve (see Section 12 C) and station valve (see Section 12 B) in another standard rectangular plastic valve box. Use 17 mm Netafim barbed fittings. Secure tubing to the ground every 3' or less with heavy duty jute netting pins. Use air relief valves housed in 10" round valve boxes. Use Netafim indicator flags. Adhere to all Netafim design and installation specifications.

15. **Risers:** Use Sch 80 PVC with Weathermatic LXS Series shrub head adapters with a ½"x6" green poly cut-off nipple screwed into the threaded fitting in the ground. The irrigation inspector reserves the right to determine placement of risers versus pop-ups.

16. **Wiring:** All wires will be 14 gauge UF. Station wires will be red. Common wires will be white. Master valve wire will be blue. Anytime the wiring changes direction, such as at an elbow or a tee, allow a loop of at least 12 inches alongside the fitting at that location. Only continuous wire runs are permissible. Wire should follow the main line where possible and lay along a single side not crossing over lateral lines. Wire is to be placed under mainline with 2" of dirt between wire and pipe.

17. **Wire Connectors:** Use only DBY connectors for all field wire splices other than at the valves themselves. Allow at least 36 inches of pigtailed wire at each splice. Use King One Step tan colored connectors for all valve splices. All valve box splices are to be housed in standard (large) Armor rectangular plastic valve boxes. All field splices are to be in 10 inch round Ametek plastic valve boxes or standard, large rectangular Ametek plastic valve boxes at the discretion of the Town's representative.

18. **Backfilling:** Prior to any backfilling of trenches, an inspection by the Town's irrigation representative must take place and any necessary changes implemented; otherwise manual excavation to enable proper inspection will be necessary. Use clean and approved topsoil to backfill all pipe to a depth. All heads and boxes are to be backfilled to grade with clean topsoil. No rocks greater than 1 inch are allowed. Compact trenches to alleviate settling. Minimal depth of coverage is 12 inches.

19. Valve sequencing must be performed by the contractor and in an order approved by the Town Irrigation Inspector. At least 12 inches of extra station wiring within the bottom of the pedestal is necessary for each zone and must be of neat and orderly appearance.

20. Any deficiencies in coverage noted by the Town's irrigation inspector will be rectified at the cost of the contractor.

21. **Controller:** A Town irrigation representative will determine the type of controller to be used. All controllers shall have a concrete pad of 36"x36"x6". Pad will be set at 3" above final grade. Install the controller after the concrete pad is completely cured (two days). Use only appropriately sized stainless steel bolts, washers and nuts to secure the controller to the concrete pad. All wiring is to enter the pedestal via appropriately sized PVC sweep elbows extending at least 1" thru and 6" out from under the pad. Control/master valve wiring, flow meter wiring and 120-V service wiring are to be seperated with each having its own access elbow. An additional spare ¾" sweep elbow for phone service is to be installed as well. All national and local codes must be followed during the installation.

A. **A/C controller** - Only Irritrol MC Plus controllers will be acceptable. Both Mini-click rain and freeze sensors will be installed and placed where they can operate properly. All non-Rain Master controllers must be permanently wired for quick attachment to a Rain Master remote control unit.

B. **Battery and/or Solar Operated Controllers** - Only LEIT controllers will be acceptable. Install rain or freeze sensors on these controllers with SKIT8821-4 installation kit. Install on galvanized thick wall poles and set controller panel to height above finished grade to be determined by Town's representative.

C. **Rain Master:** Only an approved size stainless steel Rain Master Evolution DX-2 controller with a Stainless Steel Pedestal and Heavy Duty Lightning/Surge Protection is permitted. The controller must include all necessary hardware to ensure reliable communication and operation with the Town's central control located at 16801 Westgrove. Installation must include the following Rain Master hardware, purchased only from a certified Rain Master supplier: DX-FLOW sensor board, DX-PH phone communication option, Data Industrial flow meter (same size as the mainline), and shielded EV-CAB-SEN flow meter cable. It is the irrigation contractor's responsibility to entail the cost of and work in conjunction with South Western Bell Telephone to establish a dedicated phone service and install an interface within the pedestal at each controller location via direct burial cable within 1" PVC conduit. The entire installation must conform to Rain Master specifications and be approved by the Town's irrigation inspector prior to and be inspected during installation. Such specifications will include grounding and pad configurations and distances of separation from water meter to DCA to master valve to flow meter and the first fitting. A functional Mini-click freeze and rain sensor with a Hunter bypass switch must be installed in an approved location and by an approved method.

For part numbers and pricing of any Rain Master equipment, contact Ray Schramm of John Deere Landscapes at (214) 347-3628. For technical questions, call John DuBose of RainMaster at (214) 632-2289.

22. Communication is the key. If you are unsure, CALL Ron Lee, the Operations Manager of the Addison Parks Department: Office (972) 450-2863/Cell (972) 672-1817.

STATE OF TEXAS · LICENSED IRRIGATOR · 658
10/01/2010

James Pole
IRRIGATION CONSULTANTS
IRRIGATION DESIGN, CONSULTING, AND LANDSCAPE WATER MANAGEMENT

NO.	REVISION	BY	DATE

TOWN OF ADDISON
DALLAS COUNTY, TEXAS

SPRING VALLEY ROAD

LANDSCAPE IRRIGATION SPECIFICATIONS

PROJECT	DESIGN	DRAWN	DATE	FILE	SHEET
D10438	JP	JP	OCTOBER 2010		LI 1.4

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in²/ft) ②								① Liff Weight (Tons)
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}	A_{S6}	A_{S7}	A_{S8}	
7	4	8	8	8	<2	-	0.21	0.34	0.25	0.19	0.19	0.19	0.19	0.19	10.4
7	4	8	8	8	2<3	43	0.23	0.28	0.28	0.19	-	-	-	-	10.4
7	4	8	8	8	3-5	43	0.19	0.22	0.19	0.19	-	-	-	-	10.4
7	4	8	8	8	10	43	0.19	0.23	0.23	0.19	-	-	-	-	10.4
7	4	8	8	8	15	41	0.24	0.30	0.30	0.19	-	-	-	-	10.4
7	4	8	8	8	20	41	0.31	0.38	0.39	0.19	-	-	-	-	10.4
7	4	8	8	8	25	41	0.38	0.47	0.48	0.19	-	-	-	-	10.4
7	4	8	8	8	30	41	0.46	0.57	0.57	0.19	-	-	-	-	10.4
7	5	8	8	8	<2	-	0.19	0.36	0.27	0.19	0.19	0.19	0.19	0.19	11.2
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7	6	8	8	8	3-5	47	0.19	0.25	0.23	0.19	-	-	-	-	12.0
7	6	8	8	8	10	43	0.19	0.26	0.27	0.19	-	-	-	-	12.0
7	6	8	8	8	15	41	0.19	0.34	0.35	0.19	-	-	-	-	12.0
7	6	8	8	8	20	41	0.24	0.43	0.45	0.19	-	-	-	-	12.0
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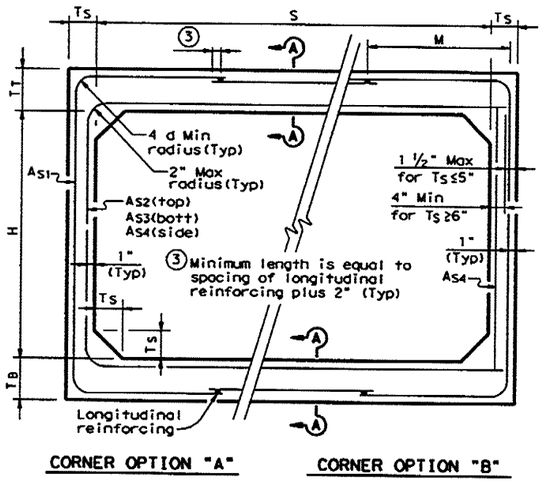
7	7	8	8	8	3-5	59	0.19	0.27	0.25	0.19	-	-	-	-	12.8
7	7	8	8	8	10	47	0.19	0.27	0.29	0.19	-	-	-	-	12.8
7	7	8	8	8	15	43	0.19	0.35	0.37	0.19	-	-	-	-	12.8
7	7	8	8	8	20	43	0.22	0.44	0.46	0.19	-	-	-	-	12.8
7	7	8	8	8	25	43	0.27	0.54	0.57	0.19	-	-	-	-	12.8
7	7	8	8	8	30	41	0.32	0.65	0.67	0.19	-	-	-	-	12.8
7	3	8	8	8	<2	-	0.28	0.36	0.24	0.19	0.21	0.19	0.19	0.19	9.6
7	3	8	8	8	30	58	0.53	0.49	0.50	0.19	-	-	-	-	9.6

⑤

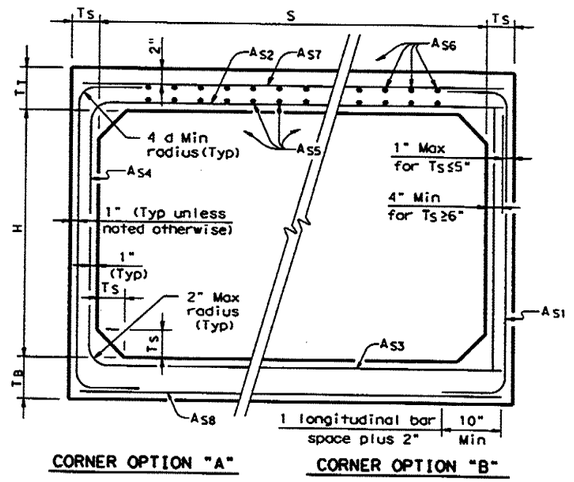
① For Box Length = 8'-0"

② A_{S1} thru A_{S4}, A_{S7} and A_{S8} are minimum required areas of reinforcement per linear foot of box length. A_{S6} and A_{S5} are minimum required areas of reinforcement per linear foot of box width.

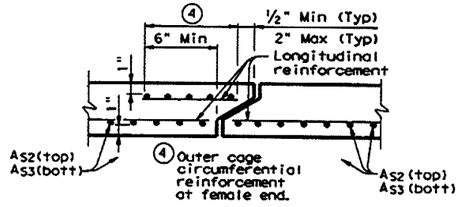
⑤ These designs were created by TxDOT and are not shown in the ASTM Specifications.



FILL HEIGHT 2 FT AND GREATER



FILL HEIGHT LESS THAN 2 FT



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)

GENERAL NOTES:

Designs shown conform to ASTM C1577.

Refer to ASTM C1577 for information or details not shown.

All concrete shall be Class "H" Concrete with a minimum compressive strength of 5,000 psi.

See SCP-MD standard sheet for miscellaneous details and notes not shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Shop plans for alternate designs shall be submitted in accordance with Item "Precast Concrete Structures".

HL93 LOADING

Texas Department of Transportation
Bridge Division

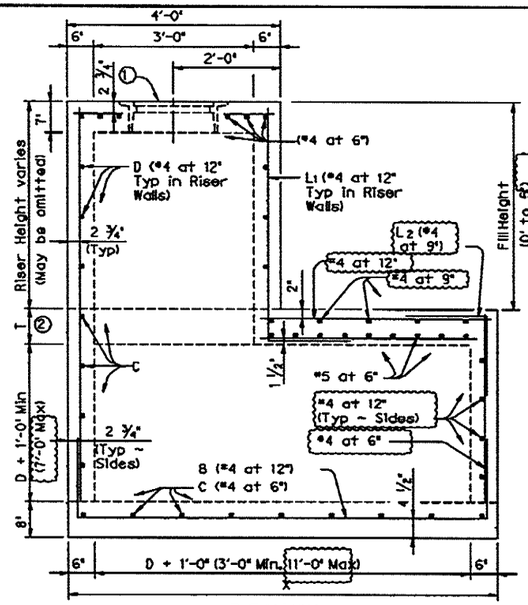
SINGLE BOX CULVERTS PRECAST
7'-0" SPAN

SCP-7

FILE: scp07ste.dgn	DN: GAF	CK: LMW	DW: BMH/TxDOT	CK: GAF
©TxDOT February 2010	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

SHEET 139 OF 163

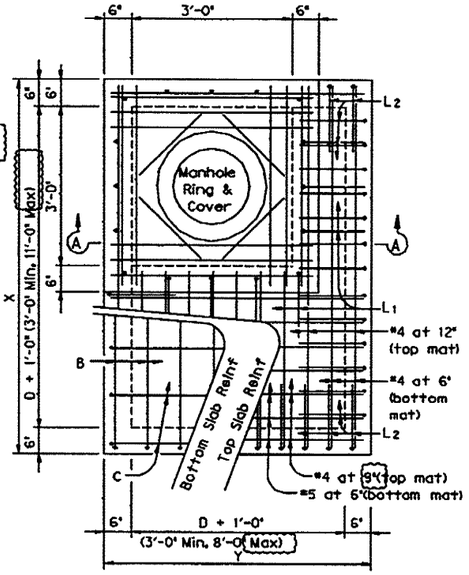
LEVELS DISPLAYED
ACC:



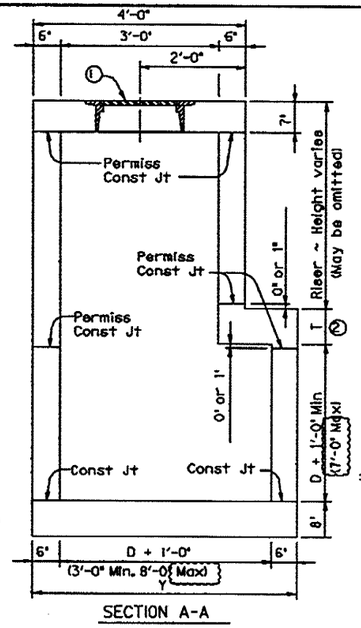
ELEVATION

D = Maximum inside diameter of any Pipe entering the side shown or the opposite side

① See Ring and Cover Details



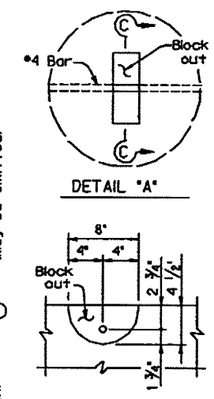
PLAN



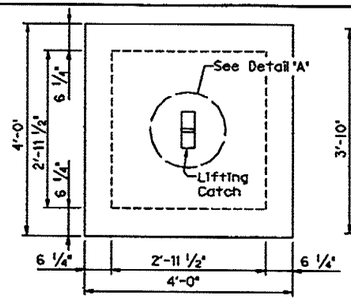
SECTION A-A

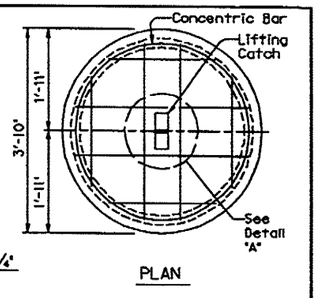
MANHOLE WITH CAST-IN-PLACE RISER

② For Fill Height less than or equal to 5', T=8".

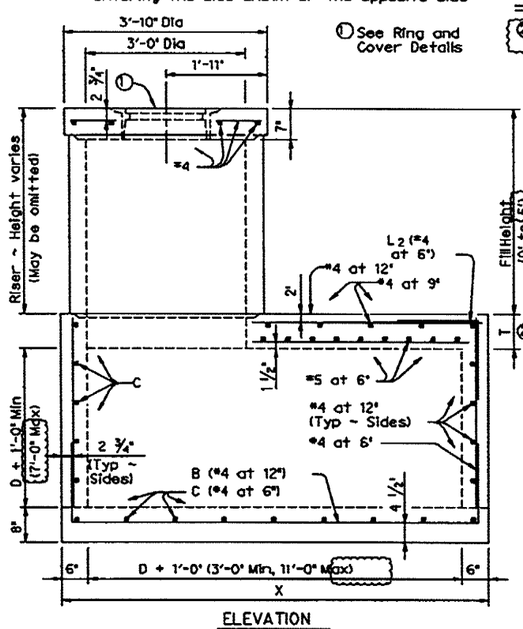


LIFTING CATCH





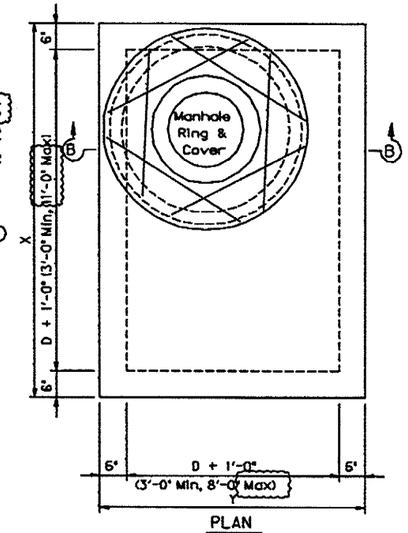
OPTIONAL PRECAST CONCRETE LIFT-OFF COVERS



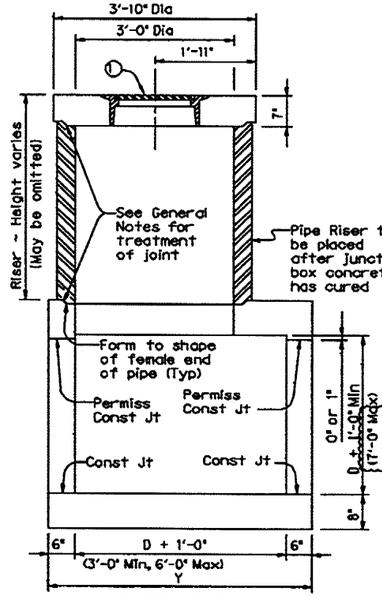
ELEVATION

① See Ring and Cover Details

② For Fill Height less than or equal to 5', T=8".

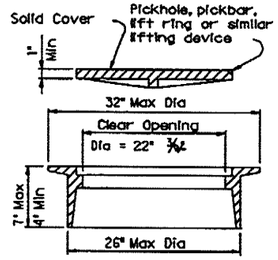


PLAN



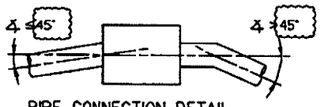
SECTION B-B

OPTIONAL MANHOLE WITH CONCRETE PIPE RISER



RING AND COVER DETAILS

Approximate Weight = 245 lb



PIPE CONNECTION DETAIL

Connecting pipes should enter within 45° of normal to inlet wall. If necessary, pipe elbow or curved approach alignment should be used to stay within this limit.

GENERAL NOTES:

Unless otherwise shown in the plans, payment will be made for each manhole of the Type M.

When approved, precast inlets with equivalent structural capacity may be furnished. Sealed engineering calculations and drawings shall be submitted for approval prior to construction.

Shop drawings will not be required.

In areas of conflict between reinforcing steel, blockouts, pipes, anchor bolts or other reinforcing steel, the reinforcement shall be bent or adjusted to clear as directed by the Engineer.

The riser may be constructed of reinforced concrete as shown or of Reinforced Concrete Pipe, Class III, in accordance with ASTM Designation C-76. If pipe is used, joints shall conform to the item "Reinforced Concrete Pipe Culverts". Precast Concrete Lift-Off Cover may be substituted for Ring and Cover.

The riser, either cast-in-place or concrete pipe, may be located in any corner.

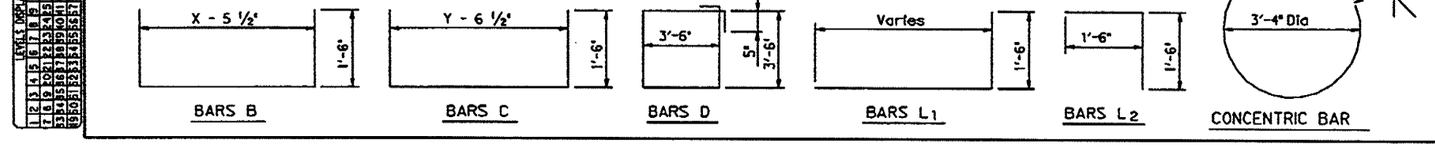
All reinforcing steel shall be #4 unless otherwise noted.

Pipes may enter any or all walls. The maximum size of pipe that can be accommodated is 36". More than one pipe may enter a side, subject to the maximum box dimension shown. The clear distance between adjacent pipes should be 9" minimum.

Ring and cover shall conform to the requirements of AASHTO M306, "Standard Specification for Drainage Structure Castings". Materials shall conform to ASTM A48, Class 35B for gray iron castings or ASTM A536, Grade 65-45-12 for ductile iron castings. Aluminum alloy castings shall not be permitted.

All concrete shall be Class "A" (f'c = 3000 psi).

Refer to drainage drawings for cement stabilized backfill requirements.



LEVEL DISPLAYED																
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
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	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262

ACC:

Modifications S.R.C. 07/29/2005

1. Changed box dimension limitations.
2. Changed maximum fill height.
3. Modified reinforcement spacing.
4. Modified pipe connection detail.
5. Changed maximum pipe size in General Notes.
6. Added general note concerning backfill.

Texas Department of Transportation
Bridge Division

MANHOLE TYPE M
(JUNCT ION BOX W ITH ACCESS)
5' MAX FILL

MH-M(MOD)

FILE: mh-m5fde.dgn	DN: TxDOT	CK: TER	DW: MCB	CK: TER/GAF
©TxDOT December 2003	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	DALLAS	(SEE TITLE BLOCK)		357
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	DENTON	2681	01	016	FM2499

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DATE:
FILE:

ELECTRICAL SERVICES NOTES

All work, materials, services, and incidentals, whether or not specifically shown on the plans, which may be necessary for a complete and proper electrical service installation as specified in the plans to obtain electrical power shall be paid for, performed, furnished and installed by the Contractor. The Contractor shall contact the Utility for metering and shall comply with all Utility requirements.

Primary line extensions, connection charges, meter charges, and other charges by the Utility company to provide power to the location shown, when required, shall be paid for under force account work. The costs associated with these charges shall be approved by the Engineer prior to engaging the Utility company to do the work. The Contractor shall consult with the appropriate Utility to determine costs and requirements, and shall coordinate the Utility's work as approved by the Engineer. The Contractor shall be reimbursed only the amount billed by the Utility. No additional amount for supervision of the Utility's work will be paid.

Materials shall be new and unused, materials and installation shall comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards and shall be Underwriters Laboratories (UL) Listed. Electrical Service conduits, conductors, disconnects, contactors, circuit breaker panel sizes, and branch circuit breakers, shall be as shown in the Electrical Service Data elsewhere in the plans. Faulty fabrication or poor workmanship in any material, equipment, or installation shall be justification for rejection.

The Contractor shall submit for approval no less than six (6) copies of catalog cut sheets on electrical service materials. Submittals shall be legible and shall be marked to indicate which product on a cut-sheet is to be supplied. Where manufacturers provide warranties and guarantees as a customary trade practice, Contractor shall furnish to the State such warranties or guarantees.

The Contractor shall provide locks keyed with Master #2195 for all lockable electrical enclosures. Keys and locks become property of the State. Unless otherwise approved by the Engineer, enclosures shall not be energized until locks are provided and all bolts are installed.

Circuit directories, where provided, shall be filled out. All breakers and components in shop built panels and enclosures shall be labeled with duo-colored plastic labels. Letters shall be a minimum 3/8 " in height.

Enclosures with external disconnects that de-energize all equipment inside the enclosure, need not have dead front trim, except that incoming line terminations shall be protected from incidental contact.

When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used. All wiring and components shall be rated for 75 degrees C. Minimum size for service entrance conductors shall be #6 XHHW.

I. Safety Switch. A safety switch, placed ahead of the meter, shall only be used when specified by the Utility and when shown on the Electrical Service Data. The switch shall be UL Listed, heavy duty type, 600 volt, unfused, with a UL type 3R enclosure and equipped with a solid neutral (s/n) assembly. The switch shall be padlockable in the "on" position.

II. Service Type. Electrical service types A, C, D, and T shall be as schematically detailed on ED(4) or ED(5). Other service types shall be as detailed elsewhere on the plans.

III. Branch Circuit Breakers. Circuit breakers shall be thermal magnetic and have a minimum interrupting capacity of 10,000 amps and a voltage rating compatible with their use. Circuit breakers shall be sized as shown in the electrical service data. Circuit breakers in panelboards and load centers shall be full size and designed exclusively for the panelboard or load center in use. Tandem and half-width breakers shall not be used. All circuit breakers shall be permanently and clearly marked identifying the circuit or device supplied. Circuit breakers shall be UL Listed to UL489.

IV. Circuit Breaker Panelboard. Panelboards shall be UL Listed. Panelboards shall have copper busses, a minimum of 6 one-pole spaces or as required in the electrical service data, and when required will be rated for service equipment. Enclosure shall meet or exceed UL type 3R classification. Panelboards shall have a threaded hub conduit entry for conduit entering the top of the enclosure. Circuit breakers shall be bolt-in type only.

V. Circuit Breaker Load Center. Load centers shall be UL Listed.
Load centers for type T services may have copper or aluminum busses, all other load centers will be copper bus only. Load center will have a minimum of 4 one-pole spaces, and shall be rated for service equipment. Enclosure shall meet UL type 3R classification. Load centers shall have a threaded hub conduit entry for conduit entering the top of the enclosure. Circuit breakers shall be plug-in type only. Load centers for type T services shall accomodate a maximum of 6 one-pole breakers.

VI. Separate or Auxiliary Enclosure. Separate enclosures for HOA, photocell and lighting contactors for types D & T Services shall be a UL Listed assembly with outer door. Interior shall have dead front trim. HOA switch operator shall extend through the dead front trim. Photocell shall be mounted inside the enclosure as described in paragraph XIII when required by descriptive code. Separate enclosures shall meet the construction requirements of paragraph VIII. E, except that separate enclosure shall not have external operating handle, need not have a data pocket and door may latch at only one point. All equipment may be located in one enclosure instead of two, when approved by the Engineer.

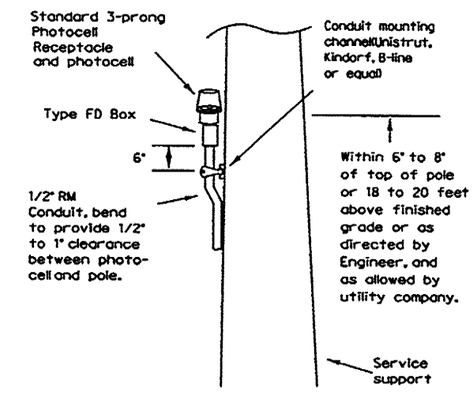
VII. Where a Type D or T service is provided, laminated "as built" drawings are required as shown on ED(5) VIII.E; shall be delivered before completion of the work, to the Engineer in lieu of placement within these smaller enclosures. Conduit may not enter the back wall of a service enclosure penetrating the equipment mounting panel. Provide grounding bushings on all metal conduits, terminate bonding jumper to grounding bus. Grounding bushing is not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss such as a meter base.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE

ELEC SERV TY X (XXX/XXX) XXX (XX) XX (X) XX (X)

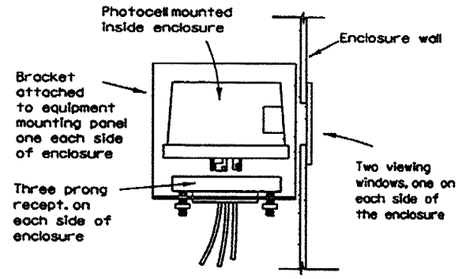
Example: ELEC SERV TY A(240/480)1000(NS)SS(E)GC(0)

- Schematic Type
- Service Voltage (V / V)
- Disconnect Amp Rating (000 indicates main lug only)
- SS= Safety switch ahead of meter
  NS= No switch ahead of meter and/or no meter required
- Enclosure Type
  GS= Galvanized steel (see ED(5)VIII.D)
  SS= Stainless steel
  AL= Aluminum
- Photocell Mounting Location
  T= Top of pole
  E= Inside service/separate enclosure
  L= Luminaire mounted
  N= None
- Service Support Type
  GC= Granite concrete
  OC= Other concrete
  TP= Timber pole
  SP= Steel pole
  SF= Steel frame
  OT= Pole by others or paid for separately
  EX= Existing pole
  TS= Switch gear to be placed on traffic signal pole
  RT= Rectangular structural tubing
  PS= Pedestal Service (see ED(5)VIII.C)
- O= Overhead service
  U= Underground service



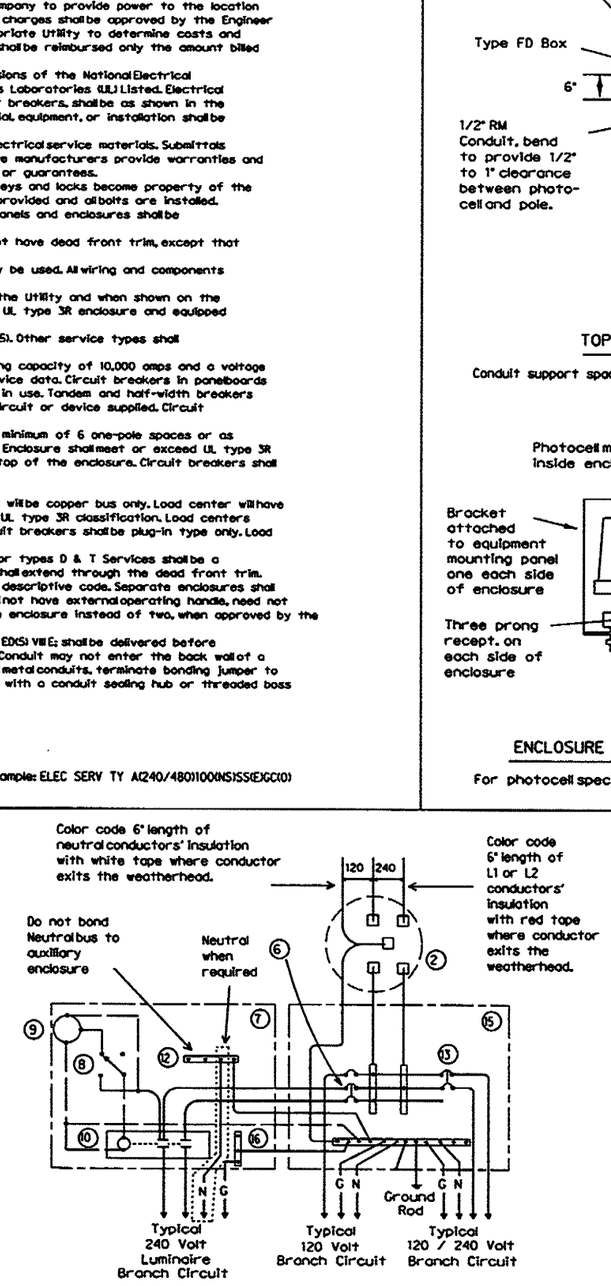
TOP MOUNTED PHOTOCELL

Conduit support spacing 3 feet from enclosure; 5 feet max.



ENCLOSURE MOUNTED PHOTOCELL

For photocell specifications see ED(5),XIII.



SCHEMATIC TYPE T

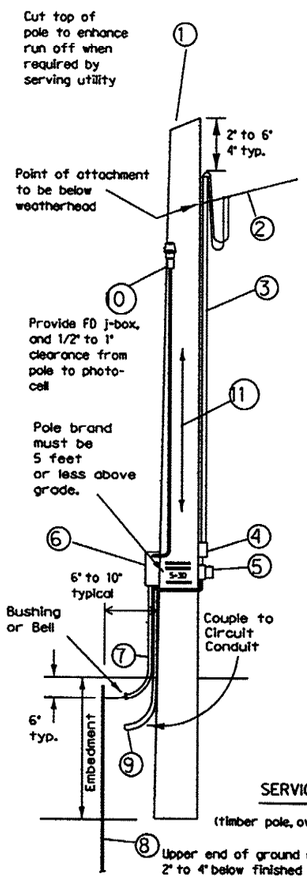
120/240 VOLTS - THREE WIRE

Install photocell and lighting contactor when shown on Electrical Service Data.

SCHEMATIC LEGEND

1 - omitted
2 - Meter (when required)
3 - Service Assembly Enclosure
4 - Main Disconnect Breaker (Not Used)
5 - Omit
6 - Circuit Breaker, 15 Amp typical for control circuit wiring
7 - Auxiliary Enclosure
8 - Control Station ("H-O-A" Switch)
9 - Photo Electric Control (enclosure-mounted shown)
10 - Lighting Contactor
11 - Power Distribution Terminal Blocks (Not Used)
12 - Neutral Bus required when 120 v. lights are controlled by lighting contactor
13 - Branch Circuit Breaker (See Electrical Service Data)
14 - Circuit Breaker Panelboard (Not Used)
15 - Load Center
16 - Ground Bus

——— Power Wiring
– – – Control Wiring
—N— Neutral Conductor (when required-to serve 120 v. loads only)
—G— Equipment grounding conductor-always required



1 - Class 5 pole, height as required
2 - Service drop from utility company (attached below weatherhead)
3 - Service conduit and service entrance conductors(RMC) (See Electrical Service Data)
4 - Safety switch (when required)
5 - Meter (when required)
6 - Service enclosure
7 - No. 6 bare grounding electrode conductor in 1/2 "PVC to ground rod - extend 1/2 "PVC 6" underground.
8 - 5/8 " x 8' Copper clad ground rod - drive ground rod completely underground unless otherwise approved by the Engineer.
9 - RM conduit - same size as branch circuit conduit.
10 - Photocell and conduit - If top mounted. (See Electrical Service Data)
11 - When required by the serving utility provide bare #6 awg copper conductor. Run wire from pole top to butt wrap or copper butt plate. Protect conductor to a height of 8 ft above finish grade.

LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

(If applicable)

- Liquidtight flexible metal conduit, may be used when meter and service enclosure are mounted 90 to 180 degrees to each other. Size shall be same as service entrance conduit.
- LFMC shall not exceed 3 ft. and shall be securely supported within one ft. of each end. No strap required for LFMC shorter than 12"
- Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting.
- A neutral conductor must be installed within the LFMC.
- Bend in liquidtight flexible metal conduit shall not exceed 180 degrees.
- A pull test is required on all installed conductors, at least six inches of free conductor movement shall be demonstrated to the satisfaction of the Engineer.

SERVICE SUPPORT TYPE TP (O)

(timber pole, overhead service, typical arrangement)

Upper end of ground rod to be 2" to 4" below finished grade

TIMBER POLE NOTES

1. Conduit and electrical conductors attached to the electrical service pole and underground within 12 inches of service pole shall not be paid for directly but shall be subsidiary to the service pole.
2. Pole top mounted photocell, Install on north side of pole or in service enclosure as required. See Electrical Service Data.
3. Attach meter and service equipment with stainless steel or galvanized channel (Unistrut, Kindorf, or equal). Gain pole as required to provide flat surfaces for each strut. Point ends of galvanized channel with zinc rich paint. Gain depth 5/8" max. Gain height 1 7/8" max. Strut to be 1" max. deep, and 1 5/8" wide max. Secure each strut section to timber pole with two galvanized or SS lag bolts, 1/4" diameter min. by 1 1/2" length min. Place flat cut galvanized or SS washer on each lag bolt. Gain pole in a neat and workmanlike manner.
4. Embedment depth shall be as required in Item 627 Treated Timber Poles.
5. Poles trimmed for excess length shall be trimmed from the top end only.

Texas Department of Transportation
Traffic Operations Division

ELECTRICAL DETAILS- SERVICE SCHEMATICS AND SUPPORT-TYPE TP (OVERHEAD)

ED(4)-03

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3-03				
	DIST	COUNTY		SHEET NO.

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SERVICE ENCLOSURE NOTES

VIII. Service Assembly Enclosures. All service assemblies and enclosures shall be UL Listed for the intended purpose.

A. Shop built or shop assembled service assemblies (all types except Type T and Type D without lighting contactor or enclosure mounted photo cell) and all auxiliary equipment enclosures mounted with service equipment and paid for as part of Item 626, "Electrical Services", shall be built or assembled by a UL Listed Industrial Control Panel shop and shall have a unique serial numbered UL Label with the words "LISTED ENCLOSED INDUSTRIAL CONTROL PANEL". The same or an additional label shall have the name, location, and phone number of the shop, the UL file number of the shop, the shop order or drawing number, date of manufacture or assembly, and the line voltage. The service assembly enclosure shall also be labeled "SUITABLE ONLY FOR USE AS SERVICE EQUIPMENT".

B. Conduit entries into the top of enclosures shall have threaded hub. Conduit entries through the equipment mounting back plate will not be allowed.

C. All service enclosure front doors shall be permanently labeled "DANGER HIGH VOLTAGE". Label shall be a self sticking type, intended for outdoor installation. Lettering style, layout and colors of red, black and white shall be as required by OSHA. Label letters shall be 1 to 1 1/2 inches high or as high as the enclosure door width will permit for smaller services. Separate or auxiliary lighting enclosures need not be OSHA labeled when mounted in the same viewing plane as the service enclosure front door. Where only one type of load is served by the service, the service door shall be marked using duo-colored plastic labels or self adhesive vinyl weather resistant labels, minimum of 1 inch high, applied in a neat and workmanlike manner. On the label will be the service number shown on the plans, as well as identifying the load served specifically (i.e. lighting, landscaping, signals, traffic management or other wording as directed by the Engineer). Safety switches need not be OSHA labeled unless specifically required by the serving utility.

D. Type GS enclosures will only be allowed for service Types D and T without an enclosure mounted photocell and/or lighting contactor and the Type C panelboard. This spec will allow an "off the shelf" product meeting these specifications to be used. Type GS enclosures shall be made from pre-galvanized steel sheeting, hot dipped galvanized steel, or powder coat painted steel unless shown differently on the plans. Steel enclosures shall be painted inside and outside; galvanized enclosures may be painted. Unless otherwise approved by the Engineer, painted enclosures shall be gray, beige, white or light green. Panelboard/loadcenter enclosures shall meet UL type 3R requirements, shall have a dead front trim, and an outer padlockable door preventing unauthorized persons from operating contained equipment. Galvanized steel is no longer allowed for Types A,C,or custom-built D or T enclosures. If GS is shown in the descriptive code for any of these, an AL shall be provided.

E. Type AL enclosures for service Types A and C shall meet UL type 3R requirements and shall also meet additional requirements of this paragraph. The enclosure shall have both a main disconnect remote operator handle and a door latch handle. Die-cast handles are not acceptable. The main disconnect remote operator shall be flange-mounted, shall interlock the door when in the "on" position, and shall be padlockable in both the "on" or "off" positions. Door latch shall latch at two or more points, operate by a handle separate from disconnect switch and be capable of being locked. Door closure clamps will not be allowed. Lock must be keyed to Master #2195. All the enclosures shall have either a continuous stainless steel piano hinge with stainless steel pin or enclosures less than 30 inches may have two heavy duty hinges, those over 30 inches must have three. Heavy duty two and three point hinges shall have a 0.185 inch minimum diameter electro-zinc plated steel pin or a stainless steel pin. Two point hinged doors shall be rated for 70 lbs of loading. Three point hinged doors shall be rated for 56 lbs of loading. The door shall have an attached data pocket constructed of either thermoplastic or metal. Pocket shall be 12" x 12", unless that size will not fit in enclosure. The pocket shall then be as large as possible, as approved by the Engineer, and mechanically attached with stainless steel nuts and bolts, or stainless steel or aluminum rivets. Enclosure shall include an equipment mounting panel installed inside the enclosure on collar studs or tapped bosses, and constructed of a minimum 12 guage galvanized steel. Equipment mounting panels shall not be painted. Enclosure shall have factory installed external mounting feet. Enclosure door shall be capable of opening at least 130 degrees, with arm or other approved means to hold the door open. Only the enclosure exterior will be primed and painted. Paint color shall be beige or gray and shall be powder coat paint as shown below. Condensation drainage shall be provided in the bottom of the enclosure before leaving the factory. The Contractor shall prepare and submit a schematic drawing unique to an individual service. The approved drawing shall be laminated and placed in the document pocket of the service at the time of shipment to the job site. All applicable wiring diagrams and plan sheet layouts for all equipment and branch breaker circuits supplied by that service shall also be laminated and placed in the document pocket prior to shipping. Type AL enclosures for Type D and T services with enclosure mounted photocell and/or lighting contactor shall have the loadcenter interior mounted in an enclosure with properly adapted dead front trim. Types D and T shall not have a loadcenter exterior "can" mounted inside another enclosure meeting these specifications. (Do not put one enclosure inside another enclosure). Types D and T with enclosure mounted photocell and/or lighting contactor shall meet the additional requirements of this paragraph except that remote-operating handle will not be provided.

F. Type SS enclosures for Type A and C shall meet all the requirements above for their respective type AL. Type SS enclosures for D and T shall meet all the requirements above for their respective type AL. Stainless Steel shall not be painted.

G. PS enclosure shall be as detailed and specified on ED(3). Galvanized steel will not be allowed for any pedestal service. If GS is shown in the descriptive code on AL will be provided.

IX. Powder Coat Paint. Powder coating shall be either a polyester thermosetting resin, a zinc rich primer with a TGIC (triglycidyl isocyanurate) powder overcoating, or a zinc-rich epoxy powder, applied by either electrostatic spray or fluidized bed immersion. High temperature oven cured, high density, low gloss, 4 mil thick (minimum), coating. Adhesion shall meet the 5A or 5B classifications of ASTM D3359. Finish shall be uniform in appearance and free of scratches.

X. Main Disconnect. Main disconnect device shall be a circuit breaker, as specified in the Electrical Service Data, shall be two or three pole, and rated for the voltage and amperage specified. Circuit breaker shall be an UL Listed thermal-magnetic circuit breaker controlled by flange-mounted remote operator in the service assembly enclosure when required. Circuit breakers shall have a minimum interrupting rating of 10,000 Amps. When the utility company provides a transformer larger than 50 KVA, Contractor shall verify that the available fault current is less than the circuit breaker amps interrupting capacity (AIC) rating and shall provide documentation from the Utility to the Engineer. Documentation shall be submitted at the same time as other electrical submittals. Circuit breaker shall be UL Listed to UL489. No backfed breakers will be allowed for use as a main disconnect.

XI. Control Circuit. Control circuit protection shall be 15 amp circuit breaker.

XII. Control Station ("H-O-A" Switch). Control station shall be a maintained-contact, three position selector switch in an UL type enclosure. Switch shall be rated 600 volts and shall be fitted with "Hand-Off-Auto" legend.

XIII. Photo Electric Control. Photo electric control shall consist of a photocell, internal lightning arrester, and relay or bimetallic switch mounted inside a weatherproof enclosure with standard 3-prong twist lock photocell plug and receptacle. The enclosure shall be made of poly-acrylic with clear acrylic window. Enclosure chassis shall be molded thermosetting plastic. The photocell shall have a polyethylene gasket, and shall have a hermetically sealed cadmium sulfide cell. The arrester shall have an enclosed type expulsion arrester rated 2.0 kV sparkover with 5,000 amps follow-through. Relay or switch shall be time delay type with normally closed contacts. Photo electric control shall be rated a minimum of 1800 VA, voltage as required. Enclosure mounted photocells shall be the same as above except that the photocell shall be mounted inside the enclosure. The enclosure shall have two acrylic paned windows, or other material approved by the Engineer, one on each side of the enclosure. Each window shall be rectangular approximately one inch by two inches, round 2 inch diameter, or as otherwise approved by the Engineer. Bracket and photocell's receptacle will be mounted inside enclosure next to each window. Except for window side, 2" of clearance is required on all sides of photocell for ease of replacement. The photocell's receptacle is held in place by two mounting screws on bracket and located next to each window of the enclosure. The 3-prong twist lock photocell shall be mounted in a position to receive light from the window closest to the photocell. The photocell shall be mounted in a position to receive light from one window. Top of pole mounted photocells shall be mounted as shown on ED(4). The Contractor shall be responsible for proper operation of the photo-electric control. The Contractor shall move and/or adjust or shield the photocell from stray or ambient nighttime light or shall make any other adjustments required for proper operation. The photocell shall face North when practicable. Unless otherwise shown on the plans, the photocell shall turn on the illumination system at 1.0 +(-) 0.5 footcandle and turn off the illumination system at two footcandles higher than turn on.

XIV. Lighting Contactor. Lighting contactor shall be a UL Listed NEMA rated lighting contactor, two-pole or multipole as required, electrically held type designed to control high pressure sodium lighting loads, with silver alloy double break contacts rated at 240 volts, 480 volts or 600 volts as required. Lighting contactor shall not be the DIN rail mounted type.

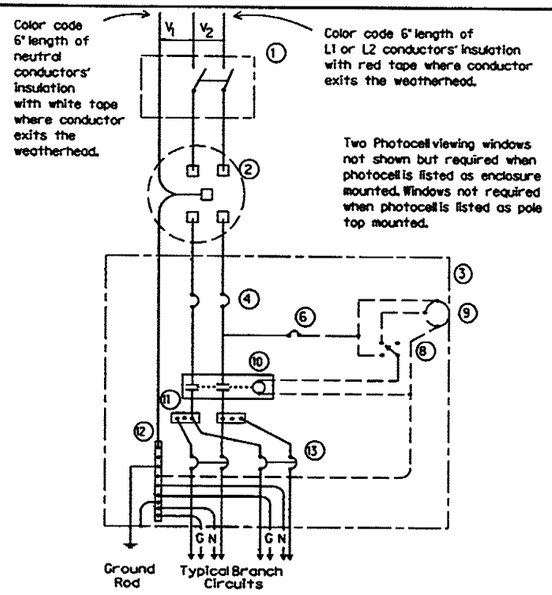
XV. Power Distribution Terminal Blocks. Power distribution terminal blocks shall be rated for 600 volts and shall be used for line side connections to branch circuit breakers where more than one circuit breaker is required. Lugs on blocks shall be properly sized for conductors being used. Only one conductor shall be placed under each lug.

XVI. Neutral/Ground Bus. Neutral/ground bus shall be a factory made bus permanently bonded to the enclosure with properly sized lugs for grounding and neutral conductors.

SCHEMATIC LEGEND

1 - Safety Switch (when required)
2 - Meter (when required)
3 - Service Assembly Enclosure
4 - Main Disconnect Breaker (See Electrical Service Data)
5 - Omit
6 - Circuit Breaker, 15Amp
7 - Auxiliary Enclosure
8 - Control Station ("H-O-A" Switch)
9 - Photo Electric Control (enclosure-mounted shown)
10 - Lighting Contactor
11 - Power Distribution Terminal Blocks
12 - Neutral/Ground Bus
13 - Branch Circuit Breaker (See Electrical Service Data)
14 - Circuit Breaker Panelboard (See Electrical Service Data)
(If Type C is shown as AL or SS on descriptive code, this is the service assembly enclosure only. Panelboard enclosure is GS unless otherwise noted.)
15 - Load Center

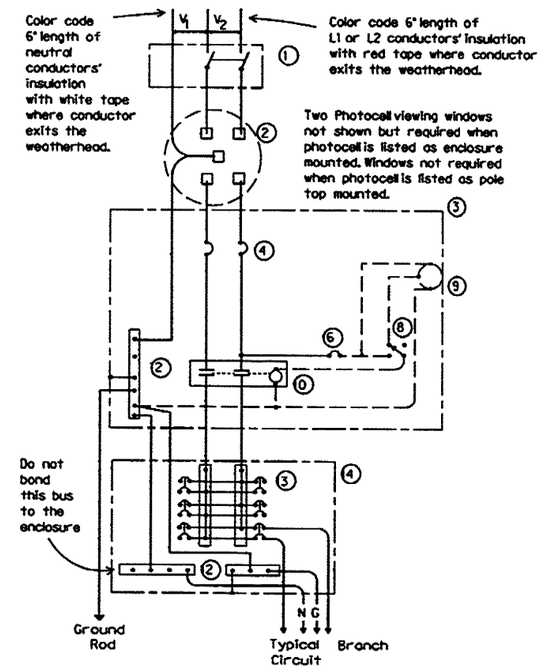
Power Wiring ———
Control Wiring - - -
——N——Neutral Conductor (when required) serve 120 v. loads only)
——⏚——Equipment grounding conductor-always required



SCHEMATIC TYPE A

THREE WIRE

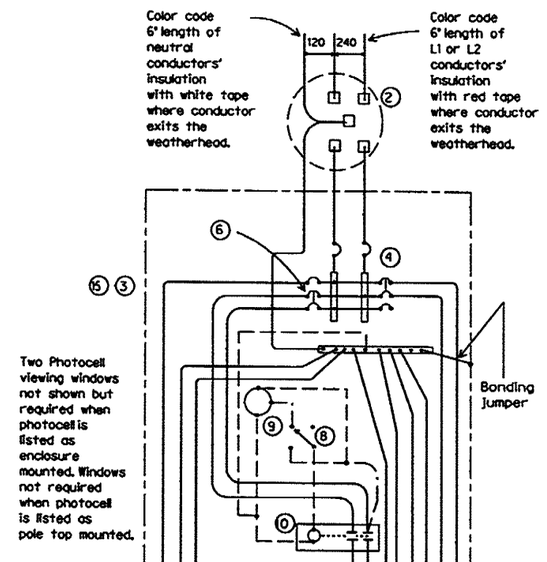
[Maximum feeder circuit size (High Mast Poles): 100 amps for two pole 480V, 125 amps for one or two pole 120V or 240V. Maximum branch circuit size: 50 amps.]



SCHEMATIC TYPE C

THREE WIRE

[Maximum feeder circuit size (High Mast Poles): 100 amps for two pole 480V, 125 amps for one or two pole 120V or 240V. Maximum branch circuit size: 50 amps.]



SCHEMATIC TYPE D

120/240 VOLTS - THREE WIRE

[Install photocell and lighting contactor when shown on Electrical Service Data. See Type D service notes.]

TYPE D SERVICE NOTES

Photocell and lighting contactor shall be located either in the same UL type 3R enclosure with load center or, if approved by Engineer, in separate enclosure. There shall be a window on each side of enclosure to allow operation of photocell. Both photocell contactor and breaker area shall have dead front trim. Enclosure, except for RT and PS supports, shall not exceed 36 inches in height or 16 inches in width unless approved by the Engineer. Ty D load center with lighting controls or TY D separate lighting control enclosure shall have power distribution blocks for a minimum of 4, #8 conductors per phase.

Texas Department of Transportation
Traffic Operations Division

ELECTRICAL DETAILS- SERVICE ENCLOSURE & NOTES

ED(5)-03

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12-00 REVISIONS	CONT	SECT	JOB	HIGHWAY
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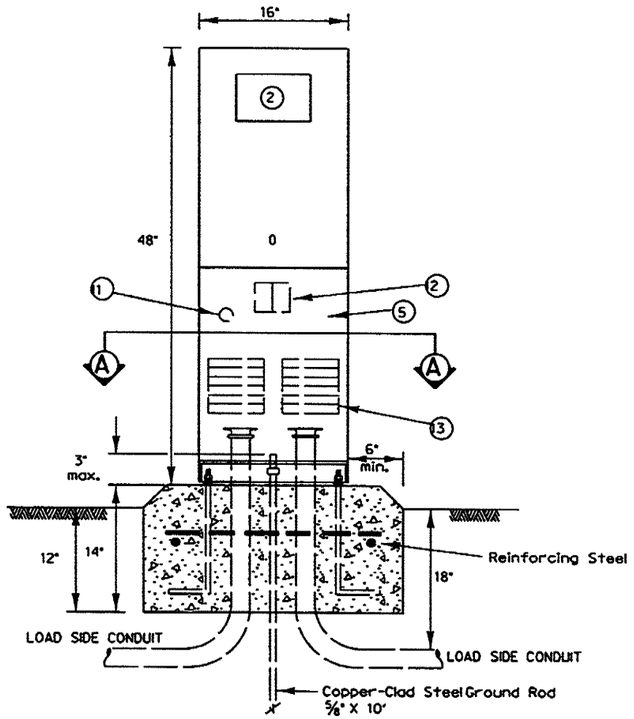
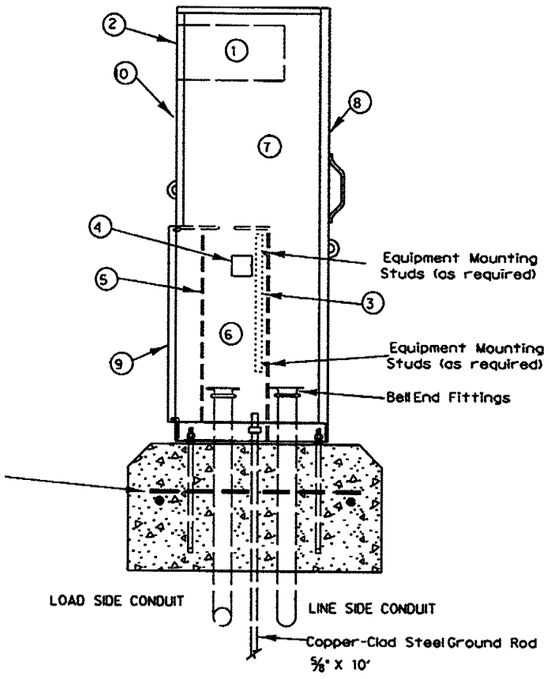


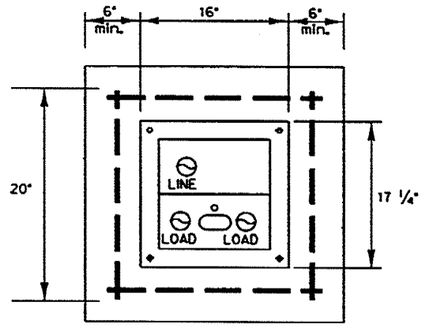
Note: Ells in foundation are rigid metal, size called for on the plans. Extension conduits from these ells may be PVC, provided ends of rigid metal conduits are more than 2 in. below top of concrete foundation. Where extension conduits are metal, grounding bushing must be installed and a bonding jumper properly terminated.

FRONT VIEW

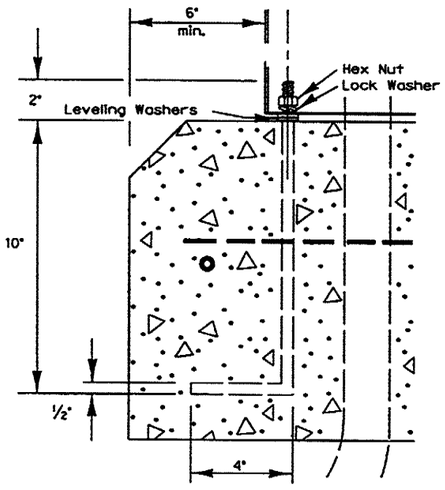
Ty C shown, Ty A similar except that Ty A shall have individual circuit breakers mounted on a equipment mounting panel. CB Handles shall protrude through hinged deadfront trim.



SIDE VIEW



SECTION A-A



ANCHOR BOLT DETAIL

GENERAL NOTES

1. The pedestal service shall be UL type 3R, and shall be constructed of a minimum of 12 guage stainless steel or aluminum as required by descriptive code. Stainless steel shall not be painted. For aluminum, the finish shall be an electrostatic applied polyurethane baked on powder, light green in color, or color as shown elsewhere and as approved by the Engineer. The front of the interior dead front trim shall be permanently labeled, "Danger High Voltage" with OSHA style label. The exterior of the pedestal service door shall be permanently labeled with a placard as to its use (i.e. Roadway Lighting, Traffic Signals, etc.). Placard shall be neat and professional in appearance. Lettering shall be 1" minimum height.
2. Utility Access Door shall have stainless steel piano hinge and provisions for padlocking.
3. Pedestal door shall have stainless steel piano hinge and stainless steel latch with provisions for padlocking.
4. Meter Access shall be hinged and capable of padlocking.
5. All mounting hardware and installation details of services shall be in accordance with utility company specifications. The Contractor is responsible for contacting the local utility company and obtaining their approval of pedestal details prior to making submittal to the Department and prior to constructing the electrical pedestal service. Any changes required by the utility company shall be noted on the submittals.
6. Meter Socket shall be a minimum of 100 amp rating and shall comply with the local utility requirements.
7. Photoelectric Control shall meet the requirements as shown on ED(5). Shield to control stray light is allowable. The Contractor shall be responsible for proper operation of the photo-electric control. The Contractor shall move and/or adjust or shield the photocell from stray or ambient nighttime light or shall make any other adjustments required for proper operation. The photocell shall face North when practicable. Unless otherwise shown on the plans, the photocell shall turn on the illumination system at 1.0 +/-0.5 footcandle and turn off the illumination system at two footcandles higher than turn on.
8. The Control Station (H-O-A Switch) shall be as shown on ED(5) except that H-O-A Switch operating handle shall protrude through hinged deadfront trim and NEMA 1 enclosure will not be required.
9. Concrete for pedestal service foundation shall be class A or C and shall be in accordance with Item 420, "CONCRETE STRUCTURES", except that concrete will not be paid for directly but shall be considered subsidiary to Item 628, "ELECTRICAL SERVICES".
10. Reinforcing steel shall be #4 rebar in accordance with Item 440, "REINFORCING STEEL".
11. Anchor bolts shall be A36M55 in accordance with Item 449, "ANCHOR BOLTS". Anchor bolts shall be ¾inch x 12 inches x 4 inches (dia. x length x hook length).
12. All conduit and conductors attached to the pedestal service and within 12 inches of the pedestal service will not be paid for directly, but shall be subsidiary to the pedestal service. All service conduit and conductors from the utility company transformer to a point 12 inches from the pedestal service shall be paid for separately. Service conduit shall be the size and type as shown in the Electrical Service Data.
13. Dimensions may vary to accomodate required equipment, utility company requirements, or manufacturer's standard equipment dimensions. The Contractor shall submit to the Engineer for approval, six (6) copies of brochures and/or drawings of the pedestal service to be supplied, including actual dimensions, and a paint color sample.
14. A separate enclosure as shown on ED(4) or ED(5) for photocell shall not be used for pedestal services. Photocell shall be installed as shown here.
15. The pedestal door shall have a mechanically attached data pocket on the inside. Pocket shall be either metal or thermoplastic and shall measure at least 12 inches by 12 inches. The Contractor shall prepare and submit a schematic drawing unique to an individual service. The approved drawing shall be laminated and placed in the document pocket of the service at the time of shipment to the job site. All applicable wiring diagrams and plan sheet layouts for all equipment and branch breaker circuits supplied by that service shall also be laminated and placed in the document pocket prior to shipping.
16. Ground rod clamp to be UL listed for direct burial. All non-conductive coating to be removed from ground rod at clamp location. Ground rod wire to be #6 AWG solid copper. Metal conduit ells to have grounding bushing and bonding jumpers correctly installed.
17. All conduits entering enclosures from underground must be sealed. Silicone shall not be allowed.
18. All conductors shall be megged and pull tested. Traffic signal cable not to be megged after connection, as electronics will be damaged.
19. Top of concrete foundation to be finished in a neat and workman like manner. If leveling washers are used, no more than ½in. height shall be used at any one corner. Maximum dip or rise in foundation is not to exceed ½in per foot. When properly installed, top of service enclosure shall read level front to back and side to side within ¼in. Rocking or movement of the service enclosure shall be repaired by the contractor at no cost to the state.
20. Liquidtight flexible metal conduit shall not be allowed on PS type services.

LEGEND

1. METER SOCKET, (when required)
2. METER SOCKET WINDOW, (when required)
3. EQUIPMENT MOUNTING PANEL
4. PHOTO ELECTRIC CONTROL WINDOW, (when required)
5. HINGED DEADFRONT TRIM
6. LOAD SIDE CONDUIT AREA
7. LINE SIDE CONDUIT AREA
8. UTILITY ACCESS DOOR, with handle
9. PEDESTAL DOOR
10. HINGED METER ACCESS
11. CONTROL STATION (H-O-A Switch)
12. MAIN DISCONNECT
13. BRANCH CIRCUIT BREAKERS

5/03 Revision

⚠ Revised notes.

Texas Department of Transportation
Traffic Operations Division

ELECTRICAL DETAILS
ELECTRICAL SERVICE SUPPORT
PEDESTAL SERVICE TYPE PS

ED(8)-03

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
12-00	CONT	SECT	JOB	HIGHWAY
3-03				
5-03	DIST	COUNTY		SHEET NO.

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DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

ROADWAY ILLUMINATION LIGHT FIXTURES

Fixture Housing:

A. Provide *UL listed fixture suitable for use in wet locations. Ensure optical compartment meets IEC Standard 60529-IP 65. Place a permanent label inside fixture indicating fixture meets *UL, IP 65 optical, and shows date of manufacture. Meet ANSI 136.15 wattage label requirements.
B. Construct fixture housing, lens frame, and door from 96% copper-free, die cast aluminum. Provide fixture mounting to a 2-in. pipe arm. Equip fixture with a 4-bolt clamp capable of adjustments plus or minus 5 degrees from level. Meet ANSI 136.31 3.0 G vibration requirements.
C. Attach a level bubble to the fixture housing. Ensure the level bubble is sensitive to 1 degree changes in position at any point within 5 degrees of the level position. Ensure the level bubble is clearly visible from the ground up to a 50 ft. mounting height. Ensure level bubble corresponds to level position of fixture.
D. Do not exceed 1.6 sq. ft. effective projected area. Do not exceed 60 lb. maximum weight.
E. Equip fixture with a 3-prong photocell receptacle with shorting cap installed.
F. Paint inside and outside of fixture light gray, when installing on galvanized poles. For all other fixtures, paint to match the color of the pole as directed by the Department.
G. Use a thermoset powder coat system. Ensure paint exceeds 1000-hr. salt-spray test in accordance with ASTM B117. Ensure a nominal thickness of 2.5 mil and no pigment loss upon 50 double-rubs using Methyl Ethyl Ketone (MEK) solvent in accordance with ASTM D5402, "Standard Practice for Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs."
H. Fabricate brackets, nuts, bolts, washers, ballast tray, and parts from stainless-steel, or aluminum of adequate thickness as approved by the Department except that:
   1. The 4 bolts/studs, 4 flat washers, 4 lock washers, and clamp that attach the luminaire to the arm may be galvanized in accordance with ASTM A123, A153 or B633. Provide means to ensure clamp is in the open position when installing.
   2. Glass lens retainer spring clips may be fabricated from galvanized steel in accordance with ASTM A153.
   3. Provide nylon throat or other approved locking means for all stainless steel nuts.
I. Provide optical assemblies which meet the following:
   1. Polished aluminum reflectors with Alzak or equal coating.
   2. Do not paint reflectors, except that, when approved by the Engineer, some surfaces may be painted with 92% reflective white paint.
   3. Reflectors may be one piece or segmented as follows.
      a. One piece reflectors:
         1. Seal photometric compartment by the use of a seamless or vulcanized seam, closed-cell silicone gasket, or other method approved by the Department.
         2. Provide a non-adjustable lamp socket mounting method so the lamp center is consistent with the reflector.
      b. Segmented reflectors:
         1. Attach segments at both ends (or opposite sides if segments are square) of the segment to a rigid aluminum base plate and side wall support assembly. Seal glass lens to lens frame with a one piece seamless silicone gasket.
   4. Equip the optical assembly with a lamp support in addition to the lamp socket to ensure the outer envelope is positioned as intended.
J. Provide 5/32 in. thick (min.) clear heat tempered or borosilicate glass.

Electrical Components:

K. Meet the following ballast requirements and pass tests in accordance with Test Method Tex-1130-T, "Ballasts of Lighting Assemblies."
   1. Mount electrical components on a removable stainless steel or aluminum tray of adequate thickness.
   2. Provide a fixture wiring diagram on or near the ballast.
   3. Use a copper wound magnetic regulating three isolated coil ballast.
   4. Provide ballast factor between 0.95 and 1.0.
   5. When the circuit voltage indicated on the plans is applied, the ballast input wattage during fluctuations of the test voltage of plus 10 percent and minus 10 percent, do not exceed the following:
      a. 220 Watts for 150 watt nominal lamp rating
      b. 440 Watts for 250 watt nominal lamp rating
      c. 552 Watts for 400 watt nominal lamp rating
   6. During fluctuation of the test voltage of plus 10 percent and minus 10 percent, ensure the lamp wattage fluctuation does not exceed a total of 20 percent and ballast maintains lamp wattage within the following limits.
      a. 110 Watts minimum and 180 Watts maximum for 150 Watt nominal lamp rating
      b. 175 Watts minimum and 370 Watts maximum for 250 Watt nominal lamp rating
      c. 280 Watts minimum and 475 Watts maximum for 400 Watt nominal lamp rating
   7. Ensure the ballast power factor, when tested at circuit voltage indicated on the plans, is not less than 90%.
   8. Permanently and clearly mark ballast or fixture to indicate following:
      a. Lamp type
      b. Catalog number
      c. Voltage rating
      d. Connection diagram
      e. Manufacturer
      f. *UL listing
L. Meet the following electronic starting aid requirements and pass tests in accordance with Test Method Tex-1140-T, "Electronic Starting Aids of High Pressure Sodium Vapor Lighting Assemblies."
   1. Provide a starting pulse with an amplitude of 2500 volts minimum, 4000 volts maximum.
   2. Ensure the pulse width is a minimum of 0.8 microseconds at 2250 volts.
   3. Ensure the pulse occurs when the open circuit voltage is equal to or greater than 90 percent of peak open circuit voltage.
   4. Ensure pulse repetition rate is a minimum of one per cycle.
   5. Provide a pulse current of 0.18 amperes (min.).
   6. Discontinue to pulse when, either,
      a. the lamp starts, or
      b. after a minimum of 3 minutes and a maximum of 10 minutes if the lamp fails to start.
M. Do not place fuses inside pole mounted luminaires. For wall mount or underpass mounted luminaires, provide internal 10 amp time-delay fuses.
N. Provide a two position terminal block for connecting supply wires which meet the following requirements:
   1. Insulate using nylon, porcelain, or phenolic material. Ensure phenolic terminal block is of adequate construction as approved by the Department.
   2. Fabricate terminals from nickel, tin plated brass, or aluminum.
O. Equip fixture with MOV surge protection in accordance with IEEE recommendations.
   1. Connect MOV from line to neutral or from line to line.
   2. Install MOV on the terminal block.

Lamp & Socket:

P. Provide *UL listed mogul base lamp sockets rated for 600 V, 1500 W that can withstand a 5000 V pulse. Meet *UL 496 requirements. Use porcelain-insulated lamp sockets with nickel plated copper alloy screw shells. Equip socket shell with a spring tensioned contact. Use nickel-plated copper alloy or stainless steel for the spring and contact.
Q. Supply and secure lamps inside the fixture that meet the following:
   1. Use pre-qualified high pressure sodium (HPS) lamps from TxDOT's material producers list of the wattages shown on the plans. No alternatives allowed.
   2. Average rated lamp life 30,000 hours.
   3. Fully extinguish at end of usable lamp life and remain extinguished without cycling.
   4. Do not provide lamps that burn at reduced output at end of life.
   5. Meet the Federal Toxic Characteristic Leachate Procedure (TCLP) limits.

Performance:

R. Meet the following photometric requirements using published photometric data and photometric data obtained by testing sampled fixtures.
   1. 150 Watt mast arm (underpass) mounted luminaire. Meet IESNA Cutoff requirements. Provide a minimum intensity of 0.20 foot-candle in a rectangular area measuring 110.0 ft. by 30.0 ft., when mounted in a level position as indicated on the properly mounted fixture level bubble 20.0 ft. above the midpoint of either long side of the surface area. Do not exceed 50:1 maximum to minimum horizontal illuminance uniformity ratio within the rectangular area.
   2. 250-watt mast arm mounted luminaire. Meet IESNA Cutoff requirements. Provide a minimum intensity of 0.20 foot-candle in a rectangular area measuring 190.0 ft. by 45.0 ft., when mounted properly in a level position as indicated on the level bubble 40.0 ft. above the midpoint either long side of the surface area. Ensure light intensities along a line parallel to and 20.0 ft. in from the long side of this rectangular area do not decrease by more than 0.50 foot-candles in any 5.0 ft. interval along the line from 10.0 ft. to 90.0 ft. on both sides of the luminaire and provide a minimum intensity of 0.30 foot-candles at any point along the line. Do not exceed 20:1 maximum-to-minimum horizontal illuminance uniformity ratio within the rectangular area.
   3. 400-watt mast arm mounted luminaire. Meet IESNA Cutoff requirements. Provide a minimum intensity of 0.20 foot-candle in a rectangular area measuring 220.0 ft. by 60.0 ft. when mounted properly in a level position as indicated on the level bubble 50.0 ft. above the midpoint of either long side of the surface area. Ensure light intensities along a line parallel to and 30.0 ft. in from the long side of this rectangular area do not decrease by more than 0.75 foot-candle in any 10.0 ft. interval along the line from 10.0 ft. to 90.0 ft. on both sides of the luminaire and provide a minimum intensity of 0.30 foot-candle at any point along the line. Do not exceed 20:1 maximum-to-minimum horizontal illuminance uniformity ratio within the rectangular area.
S. Ensure photometric data is consistent from fixture to fixture. Match published photometric data (or approved photometric reports submitted during the prequalification process as the typical photometric output instead of published data) as follows:
   1. Point of maximum candela within 5 degrees horizontally and vertically.
   2. Maximum candela within 20% of published maximum candela.
   3. Fixture efficiency within 10% of published efficiency.

* When reference is made to UL, it can be considered to mean a Nationally Recognized Independent Testing Lab (NRTL). Comparable standards of Canadian Standard Association, Electrical Testing Laboratories or Factory Mutual can be equal to the referenced UL standard.

DATE:
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Sheet 1 of 2

Texas Department of Transportation
Traffic Operations Division

ROADWAY ILLUMINATION DETAILS

(RDWY ILLUM LIGHT FIXTURES)

RID(LUM1)-07

©TxDOT January 2007	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

72A

Prequalification:

T. Use only pre-qualified fixtures. No alternates will be considered.
1. Only materials with approved product codes or designations from prequalified producers are accepted on bids. The Construction Division (CST) of the Texas Department of Transportation (TxDOT) maintains the material producers list of approved producer product codes or designations. Use the following website to view this list: http://www.dot.state.tx.us/business/producer_list.htm
Use of prequalified material does not relieve the contractor of the responsibility to provide materials that meet the specifications. All materials, including those shown on the prequalified material list, may be inspected and tested at any time and may be rejected if not in compliance with the specifications.
2. Notify the Department in writing as to which fixture from the prequalified list of approved fixtures will be supplied on each project.
3. To have a fixture listed as pre-qualified:
a. Submit a sample of each type of luminaire and all pertinent data, including published photometric data and recently tested photometric data (IES format, both "averaged" and both sides of "un-averaged" data) to:
TXDOT- TRF 118 East Riverside Dr. Austin, TX 78704
b. Demonstrate a commitment to quality.
c. Submit the following documentation:
1. QA/QC program documentation with the following minimum requirements;
a. Written statement of the companies QA/QC policy.
b. QA/QC person employed that has special QA/QC training and has QA/QC as their primary job responsibility.
c. A written procedure specifically for handling orders for fixtures built to TxDOT specifications.
d. A written procedure for keeping track of fixtures built, certified, and tested for TxDOT orders.
e. A check list of features for TxDOT fixtures with QA/QC person signature.
2. Fixture UL certification
3. IP 65 certification
4. 3G certification
5. Aluminum casting and paint analysis
6. Socket, MOV, and shutoff ignitor data
7. Stainless steel and aluminum bracket data
8. Ballast electrical data
9. Photometric data
10. Lamp data
d. Prequalification samples, if approved, will not be returned to the manufacturer but will be retained by the the Department for comparison testing. Once a fixture has been approved, do not change any material or manufacturing method without prior approval of the Department. Unapproved changes will result in rejection of the fixture.
e. In addition, luminaires will be tested for compliance with this specification. Luminaires that inconsistently pass testing or that are inconsistent with published photometric information will be removed from the pre-qualified list at the discretion of the Department.

Sampling:

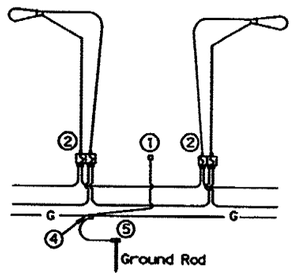
U. Sample in accordance with Test Method Tex-1110-T, "Sampling Lighting Assemblies."

Manufacturer Warranty:

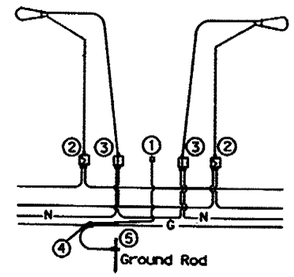
V. Replace failed fixtures, when non-operable due to defects in materials or workmanship within five years of installation with a fixture that passes all testing, delivered to the project location. Lamps and photocells are subject to the warranties of their respective manufacturers.

Testing:

W. Conduct electrical testing required in the Ballast section. Provide photometric testing of fixtures. Test fixtures at the following rates.
1. Manufactuer Testing. Before fixtures are shipped from the manufacturer, test fixtures as follows. From each lot or manufacturing run, select one completed fixture of each 25, with a minimum of 2 and a maximum of 5. Test photometrics at an independent test lab inspected and approved by TxDOT. Electrical testing may be performed at manufacturer's facility.
a. Provide IES photometric report in two formats:
1. Standard averaged format for asymmetric fixtures.
2. Un-averaged format showing both sides. Un-averaged data may be supplied in two files or as approved by the Department.
b. Provide electrical and photometric test data directly to TRF-TE electronically for evaluation prior to shipping fixtures to the project. Do not ship fixtures until test data for each lot is approved by TRF-TE.
c. Provide the following information on test reports:
1. TxDOT's Control-Section-Job number, maintenance contract number, or purchase order number the fixtures are assigned to,
2. a unique fixture test number per fixture,
3. date of manufacture, and
4. quantities supplied and lot number per fixture type.
d. Write the unique lab report number on the top of the fixture housing with permanent marker. Ensure the test lab retains the results for 5 years. Provide the Department access to documentation.
e. Retain records of manufacturing lots, test reports, lot quantities, and other pertinent details. Submit records to the Department upon request.
f. Submit to TRF-TE a daily shipment report for shipments to each job.
g. Make available to TxDOT inspectors upon request, all manufacturing facilities involved in the production of fixtures for use on Department projects, inventories of fixtures produced to Department specifications, and records of fixture testing and tracking.
2. Departmental Test Reporting. Departmental test reports will be issued in accordance with Tex 1110-T.



FOR THREE-WIRE CIRCUIT-CENTER GROUNDED
LUMINAIRES SERVED AT 480V ON 240/480 VOLT SERVICE OR LUMINAIRES SERVED AT 240V FOR FOR 120/240 VOLT SERVICE.



FOUR-WIRE CIRCUIT-CENTER GROUNDED
LUMINAIRES SERVED AT 240V
(240/480 VOLT SERVICE)

NOTES:

① Use 1/2 in.-13 UNC threaded, copper or tin-plated copper, pole bonding connector, sized appropriately for conductors.
②③ Use pre-qualified Breakaway Connectors for both T-Base and Shoe-Base installations.
④ Split Bolt or other connector.
⑤ Use Ground Rod Clamp listed for its intended purpose (i.e. concrete, direct burial...)

Texas Department of Transportation
Traffic Operations Division

ROADWAY ILLUMINATION DETAILS

(RDWY ILLUM LIGHT FIXTURES)

RID(LUM2)-07

REVISIONS	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

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DATE:
FILE:

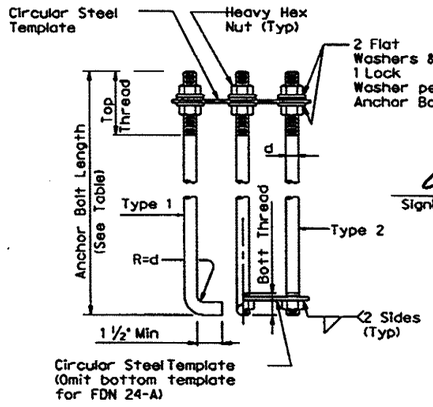
FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		DRILLED SHAFT LENGTH-ft ④, 5, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #6	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #8	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #8	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #8	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #8	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32' ⚠1	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	⚠1	36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'

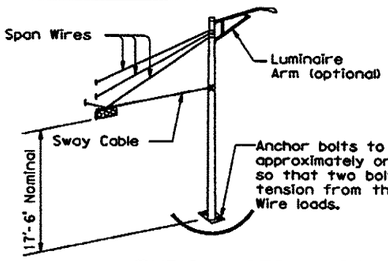
EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.



HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

ANCHOR BOLT ASSEMBLY

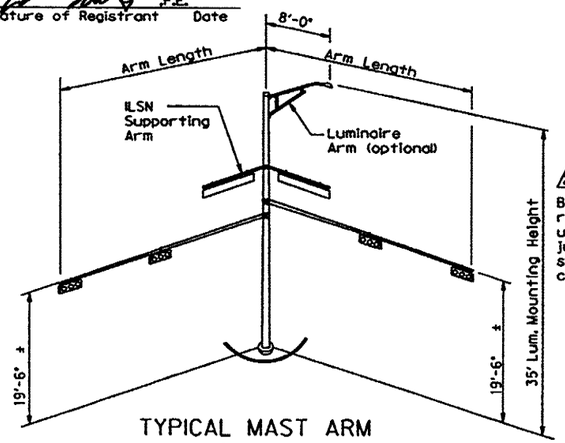
INSTALLATION PROCEDURE :
Threads of anchor bolts shall be coated with pipe joint compound prior to installation of upper nuts when erecting pole. After pole is plumbed and in permanent alignment, the exposed threads of painted bolts shall be cleaned and an additional coating of zinc-rich paint applied to seal the bolt thread-nut joint.



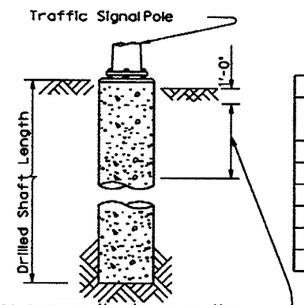
TYPICAL STRAIN POLE ASSEMBLY

STATE OF TEXAS S.P. BOOTH 94903 LICENSED PROFESSIONAL ENGINEER

Signature of Registrant P.E. 7/30/2010 Date



TYPICAL MAST ARM ASSEMBLY



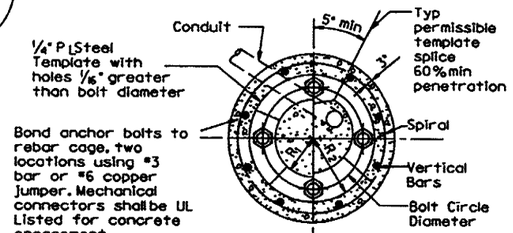
Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.

NOTES:
① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.
② Foundation Design Loads are the allowable moments and shears at the base of the structure.
③ Foundations may be listed seperately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.
④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.
⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.
⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

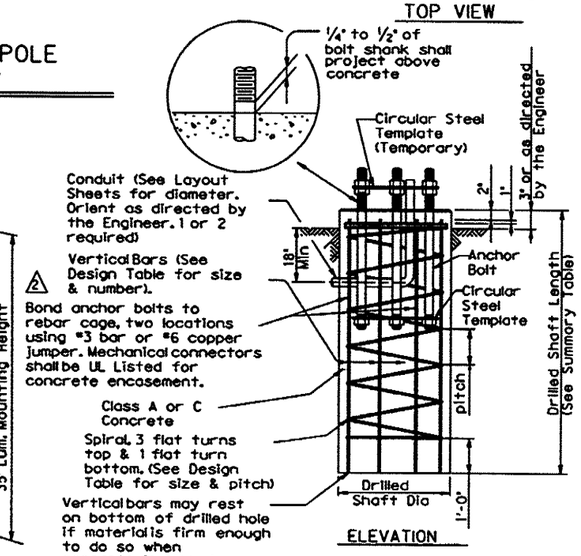
ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTT THREAD	BOLT CIRCLE	Rz	Ri
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	2"	17"	10"	7"
1 ¾"	3'-10"	7"	2 ¼"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	2 ½"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	3"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.



TOP VIEW



ELEVATION

FOUNDATION DETAILS

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH (FEET) ⑥				
				24-A	30-A	36-A	36-B	42-A
SPRING VALLEY								
AT	10	36-A	4			13		
VITRUVIAN PKWY								
TOTAL DRILLED SHAFT LENGTHS						52		

GENERAL NOTES :
Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.
Reinforcing steel shall conform to Item 440.
Concrete shall be Class A or C.
Threads for anchor bolts and nuts shall be rolled or cut threads of unified national coarse thread series except for A19387 bolts which shall have 8 pitch thread series. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.
Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Anchor bolts larger than 1" in diameter shall conform to A36M55 in accordance with the item, "Anchor Bolts" or ASTM A19387 or A687. Galvanize or coat with zinc-rich paint a minimum of the upper 14 inches of all anchor bolts unless otherwise noted. Exposed nuts shall be galvanized or coated with zinc-rich paint. Washers shall be galvanized. Templates and embeded nuts need not be galvanized.

11/99 Revision
⚠1 Changed to Facilitate new terminal strip enclosure
⚠2 Changed from ground rod to UFER ground

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-99

©TxDOT August 1995	DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB
REVISIONS 5-96 11-99	STATE DISTRICT 6	FEDERAL AID PROJECT		SHEET
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC: d48hplqu/usr/d482517

V=1:2 for English 1:3 for Metric

SHEET 146 OF 163

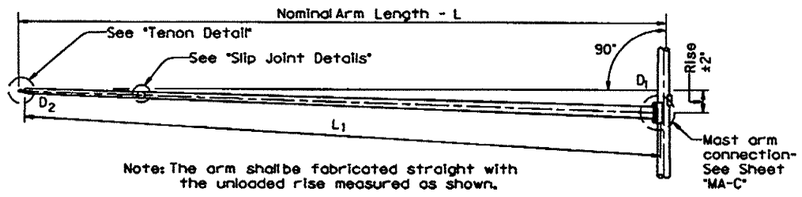
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_8	D_{19}	D_{24}	D_{30}	① thk	D_8	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
32	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
36	12.0	9.3	8.6	7.8	.239	12.5	9.5	8.7	7.8	.239	36-A
40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"
48	47.0	10.5	4.1	.239	3'-4"	47.0	11.0	3.5	.239	2'-9"

D_8 = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)

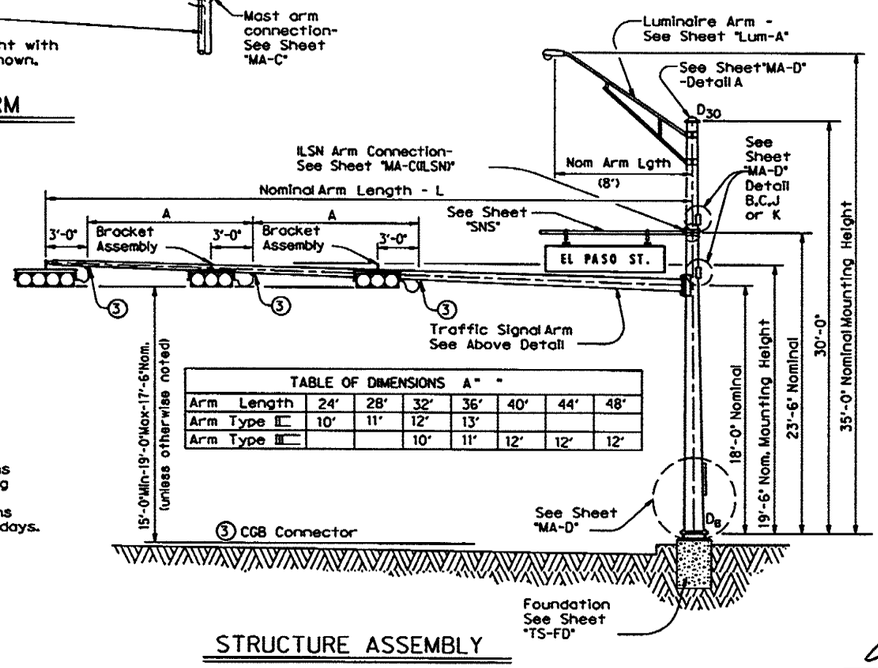


TABLE OF DIMENSIONS A" "							
Arm Length	24'	28'	32'	36'	40'	44'	48'
Arm Type I	10'	11'	12'	13'			
Arm Type II			10'	11'	12'	12'	12'

STRUCTURE ASSEMBLY

VIBRATION WARNING

Mast Arms of approximately 40' or longer are subject to possible harmonic vertical vibrations in light wind conditions due to unusual combinations of signal numbers, weights or positions, arm-wind orientation, and arm-pole stiffness. Arms shall be visually inspected in 5 to 20 mph wind conditions after signal head installation and, if vertical movements with a total excursion (max positive to max negative) of more than approximately 8" are observed at arm tip, damping devices or other means shall be fitted to the arm(s). The necessary damping device(s) or other remedial measures shall be as recommended by the fabricator. Excessive vibrations shall not be allowed to continue for more than two days.

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30' Poles With Luminaire: Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		24' Poles With ILSN: Above hardware plus one small hand hole		19' Poles With No Luminaire and No ILSN: See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80		24S-80		24-80	
28	28L-80		28S-80		28-80	
32	32L-80		32S-80		32-80	
36	36L-80		36S-80	3	36-80	
40	40L-80		40S-80	1	40-80	
44	44L-80		44S-80		44-80	
48	48L-80		48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal): 1 CGB connector		Type II Arm (2 Signals): 1 Bracket Assembly and 2 CGB Connectors ④		Type III Arm (3 Signals): 2 Bracket Assemblies and 3 CGB Connectors ④	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	3
40					40III-80	1
44					44III-80	
48					48III-80	

Luminaire Arms (1 per 30' pole)

Nominal Arm Length	Quantity
8' Arm	

④ Supply Option "A" unless otherwise noted

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7' Arm	4
9' Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3'-4"	
1 ¾"	3'-10"	4

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, 4 lock washers and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

SHEET 147 OF 163

SHEET 1 OF 2

STATE OF TEXAS S.P. BOOTH 94803 REGISTERED PROFESSIONAL ENGINEER

Signature of Registrant P.E. 9/20/2000 Date

11/99 Revision

⚠ Changed to Facilitate new terminal strip enclosure

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(1)-99

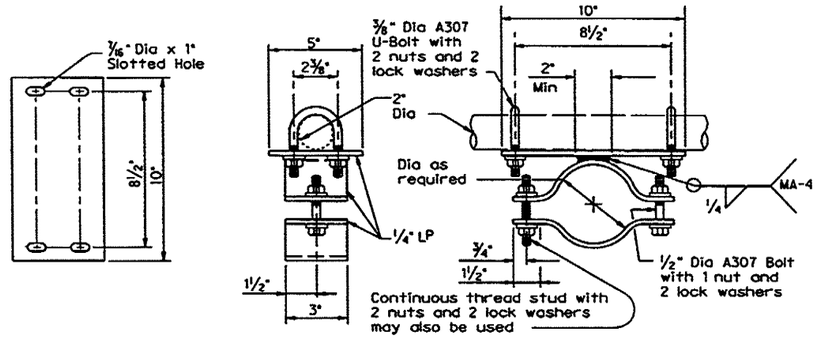
FILE: SMA-80.DGN	DN: MS	CK: JSY	DW: MMF	CK: JSY
©TxDOT August 1995	DIST	FED REG	FEDERAL AID PROJECT	SHEET
REVISIONS		6		445
5-96	COUNTY		CONTROL	SECT	JOB	HIGHWAY
11-99						

122A

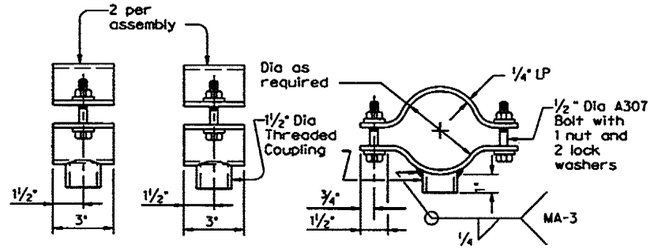
LEVELS DEPLOYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC: d48hplqi/usr/d482517

LVL:2 for English 1:3 for Metric



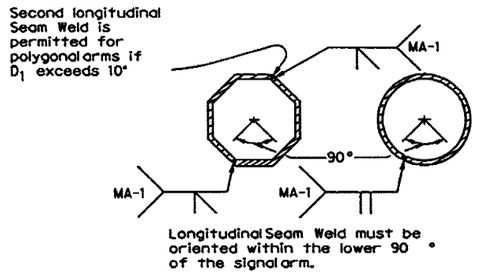
BRACKET ASSEMBLY DETAILS OPTION A



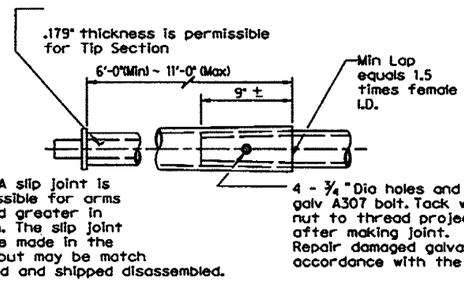
BRACKET ASSEMBLY DETAILS OPTION B

Stainless steel bands and cast bracket as in "Astro-Brac" with 1½" Dia Threaded Coupling.

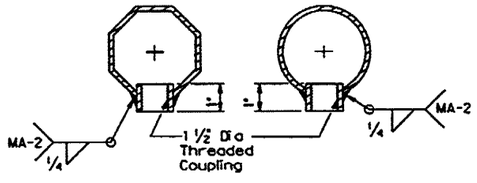
BRACKET ASSEMBLY OPTION C



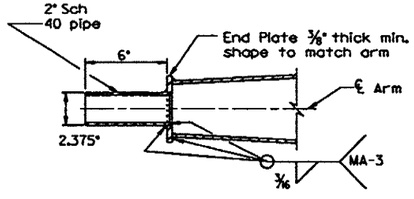
ARM WELD DETAIL



SLIP JOINT DETAIL



COUPLING DETAILS



TENON DETAIL

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor.

Poles are designed to support one 8'-0" luminaire arm, one 9'-0" internally lighted street name sign and one traffic signal arm with a length as tabulated. The specified luminaire load applied at the end of the luminaire arm equals 75 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.5 sq ft. The specified internally lighted street name sign load applied 4.5 ft from the centerline of the pole equals 85 lbs vertical dead load plus horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

See Standard Sheet "MA-D" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with the Specifications and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Miscellaneous welds which do not call for preapproved weld procedures are nevertheless subject to rejection for poor workmanship. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and the Specifications.

Unless otherwise noted, all parts shall be galvanized in accordance with the Specifications.

Special design require submission of shop drawings in accordance with the item "Steel Structures".

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

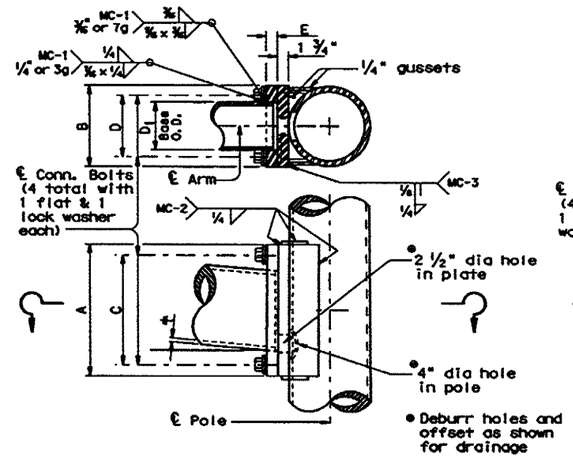
(80 MPH WIND ZONE)

SMA-80(2)-96

FILE: SMA-80.DGN	DN: MS	CK: JSY	DW: MMF	CK: JSY			
©TxDOT August 1995	DIST	FED RDS	FEDERAL AID PROJECT			STATE	SHEET
REVISIONS		6					446
5-96	COUNTY			CONTROL	SECT	JOB	HIGHWAY

DATE:
FILE:

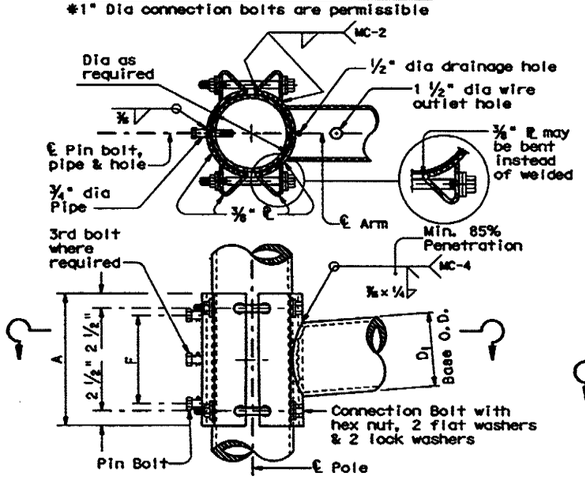
ARM SIZE D_1	ARM SIZE ±	A	B	C	D	E	CONN BOLT DIA
in.	in.	in.	in.	in.	in.	in.	in.
6.5	.179	12	9	9	6	1 ¾	1
7.5	.179	13	9	10	6	1 ¾	1
8.0	.179	14	10	11	7	2	1 ¼
9.0	.179	16	11	13	8	2	1 ¼
9.5	.179	17	12	14	9	2	1 ¼
9.5	.239	18	12	15	9	2	1 ¼
10.0	.239	18	12	15	9	2	1 ¼
10.5	.239	18	13	15	10	3	1 ½
11.0	.239	18	13	15	10	3	1 ½



FIXED MOUNT DETAIL 1

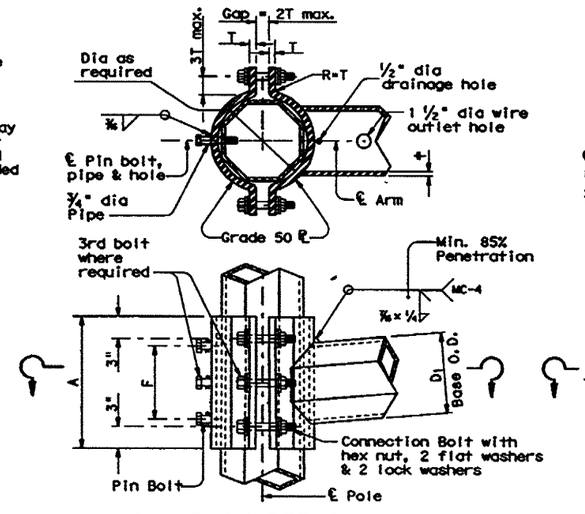
ARM SIZE D_1	ARM SIZE ±	A	F	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	ea.	in.	ea.	in.
6.5	.179	12	8	4	#⅞	2	⅝
7.5	.179	14	8	4	1	2	⅝
8.0	.179	14	8	4	1	2	⅝
9.0	.179	16	10	4	1	2	⅝
9.5	.179	18	12	4	1 ¼	3	⅝
9.5	.239	18	12	4	1 ¼	3	⅝
10.0	.239	18	12	4	1 ¼	3	⅝

#1" Dia connection bolts are permissible



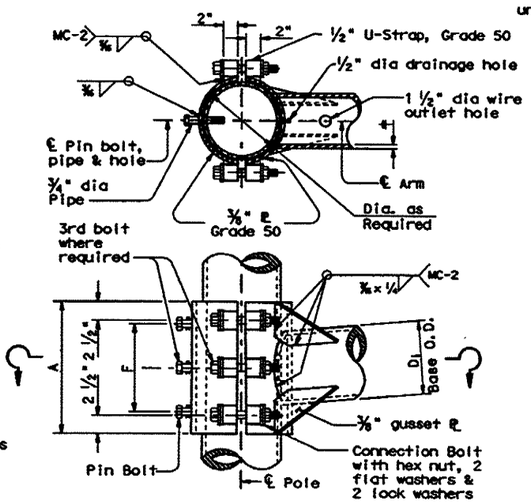
CLAMP-ON DETAIL 1

ARM SIZE D_1	ARM SIZE ±	A	F	T	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	in.	ea.	in.	ea.	in.
7.0	.179	12	8	¾	4	¾	2	⅝
7.5	.179	14	8	¾	4	¾	2	⅝
8.0	.179	14	8	¾	4	¾	2	⅝
9.0	.179	16	10	⅞	4	1	2	⅝
10.0	.179	18	10	⅞	4	1	2	⅝
9.5	.239	18	10	1	6	1	3	⅝
10.0	.239	18	10	1	6	1	3	⅝



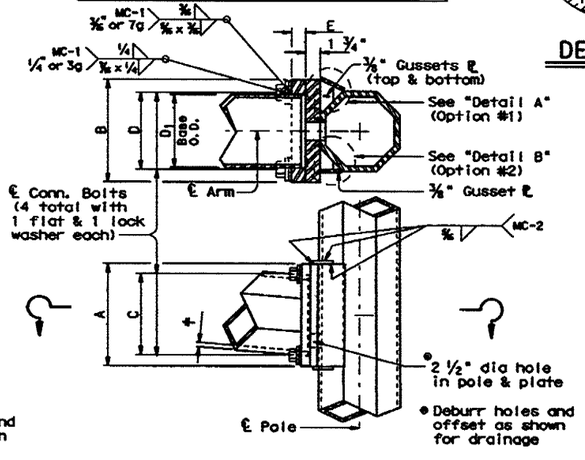
CLAMP-ON DETAIL 2

ARM SIZE D_1	ARM SIZE ±	A	F	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	ea.	in.	ea.	in.
6.5	.179	12	8	4	1	2	⅝
7.5	.179	14	8	4	1	2	⅝
8.0	.179	14	8	4	1	2	⅝
9.0	.179	16	10	4	1	2	⅝
9.5	.179	18	12	6	1	3	⅝
9.5	.239	18	12	6	1	3	⅝
10.0	.239	18	12	6	1	3	⅝

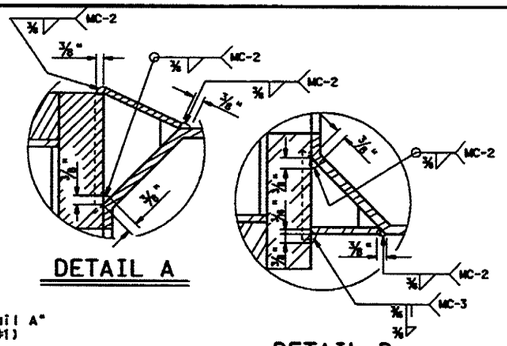


CLAMP-ON DETAIL 3

ARM SIZE D_1	ARM SIZE ±	A	B	C	D	E	CONN BOLT DIA
in.	in.	in.	in.	in.	in.	in.	in.
7.0	.179	11	11	8	8	1 ¾	1 ¼
7.5	.179	11	11	8	8	1 ¾	1 ¼
8.0	.179	11	11	8	8	2	1 ¼
9.0	.179	13	13	10	10	2	1 ¼
10.0	.179	13	13	10	10	2	1 ¼
9.5	.239	13	13	10	10	2	1 ¼
10.0	.239	14	14	11	11	2	1 ½
11.0	.239	14	14	11	11	3	1 ½
11.5	.239	14	14	11	11	3	1 ½



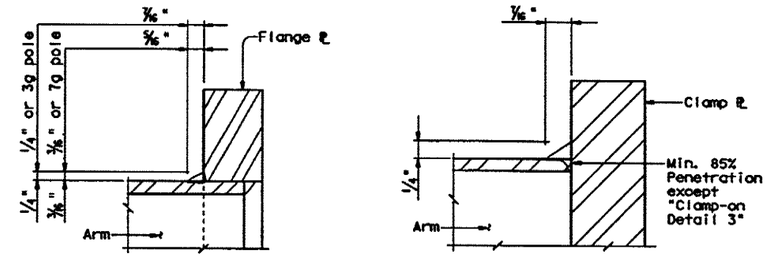
FIXED MOUNT DETAIL 2



MATERIALS	
Round Shafts or Polygonal Shafts	ASTM A595 GR A, ASTM A570 GR 50, ASTM A607 GR 50, ASTM A572 GR 50 or A36M50
Plates (1)	ASTM A36 OR A572 GR 50 or A595(2) or A36M50
Connection Bolts	ASTM A325 except where noted
Pin Bolts	ASTM A325
Pipe	ASTM A53 GR A or B, or A501
Misc. Hardware	Galvanized steel or stainless steel or as noted

(1) Any of the materials listed for plates may be used where the drawings do not specify a particular Grade designation.

(2) If A595 material is used, it need not be cold worked to A595 requirments, but material must have 40 ksi minimum yield prior to fabrication.



ARM BASE WELD DETAILS

GENERAL NOTES:

Clamp-on details are used for the second arm on dual mast arm assemblies. A Maximum 1 ½" wide vertical slotted hole may be cut in the front clamp plate to facilitate drainage during galvanizing. The slot shall be centered behind the arm and shall be no longer than the arm diameter minus 1"

Fixed mount details are used for single mast arm assemblies and for the first arm on dual mast arm assemblies.

Where duplicate parts occur on a detail, welds shown for one part shall apply to all similar parts on the detail.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces.

NOTE:

Pin bolts shall be A325 with threads excluded from the shear plane. Pin bolt and ¾" dia pipe shall have ⅜" dia holes for a ⅛" dia galvanized cotter pin. Back clamp plate shall be furnished with a ¾" dia hole for each pin bolt. An ⅛" dia hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY FOR TRAFFIC SIGNAL SUPPORT STRUCTURES

MAST ARM CONNECTIONS

MA-C-09

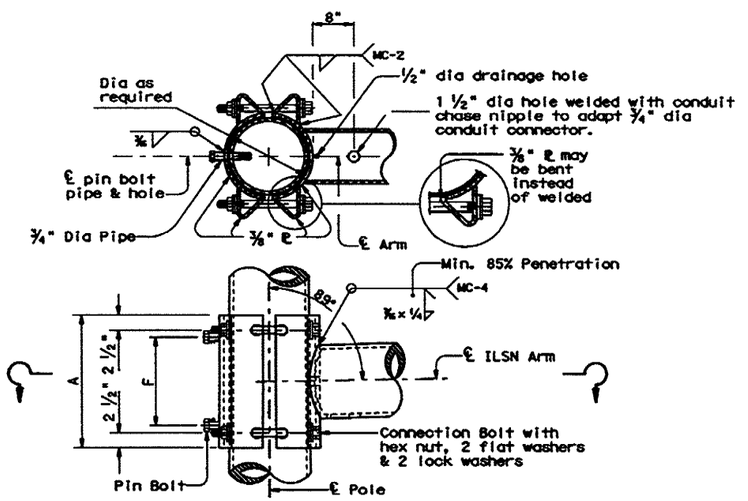
DATE: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISIONS	DIST	SECT	JOB	HIGHWAY
5-96				
5-09 Connection ℄ Thk E	DIST	COUNTY		SHEET NO.

126A

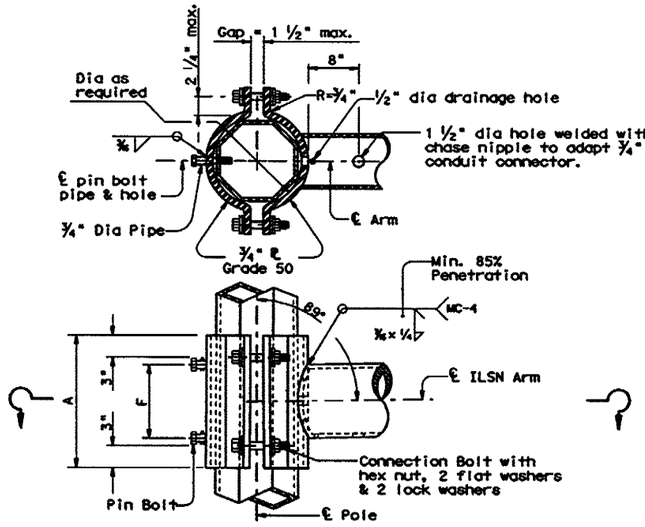
SHEET 149 OF 163

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

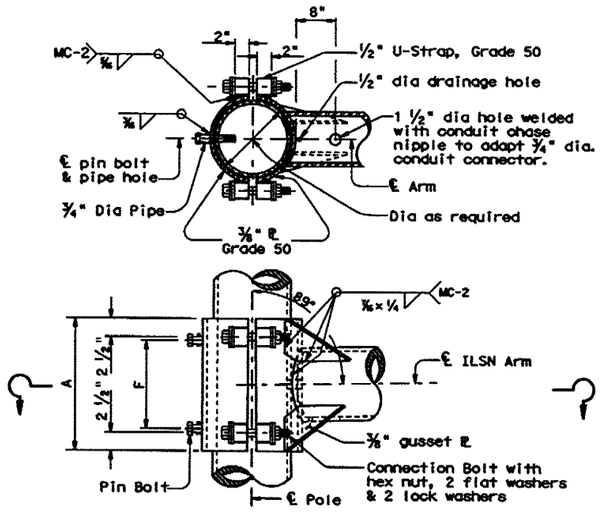
TABLE OF DIMENSIONS for ILSN Support Arm Clamp-on Details 1, 2 and 3						
ILSN ARM SIZE	A	F	CONN. BOLTS		PIN BOLTS	
			No.	Dia	No.	Dia
	in.	in.	ea.	in.	ea.	in.
3 in. dia Schedule 40 Pipe	10	8	4		2	⅝



ILSN CLAMP-ON DETAIL 1



ILSN CLAMP-ON DETAIL 2



ILSN CLAMP-ON DETAIL 3

GENERAL NOTES:

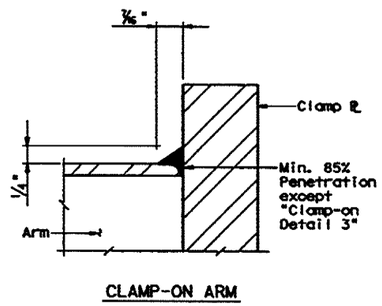
Clamp-on details shall be used for ILSN support arm assemblies. A 1 ½" inch diameter hole shall be cut in the front clamp plate for wiring access. A matched hole shall be field drilled through the pole to provide wire access after arm is oriented. Deburr both holes.

Where duplicate parts occur on a detail, welds shown for one part shall apply to all similar parts on the details.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces.

NOTE:

Pin bolts shall be A325 with threads excluded from the shear plane. Pin bolt and ¾" dia pipe shall have ⅜" dia holes for a ⅛" dia galvanized cotter pin. Back clamp plate shall be furnished with a ¾" dia hole for each pin bolt. An 11/16" dia hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.



CLAMP-ON ARM

ARM BASE WELD DETAILS

SHEET 150 OF 163

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY FOR TRAFFIC SIGNAL SUPPORT STRUCTURES

MAST-ARM CONNECTIONS

MA-C(ILSN)-96

©TxDOT August 1995	DGN TXDOT	CK TXDOT	DW TXDOT	CK TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
5-96				
	DIST	COUNTY		SHEET NO.

1268

DATE:
FILE:

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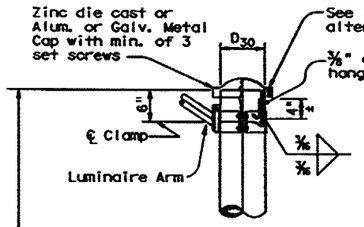
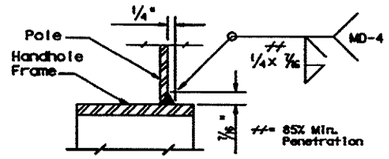
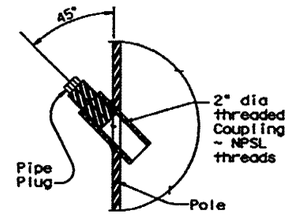
DATE:
FILE:



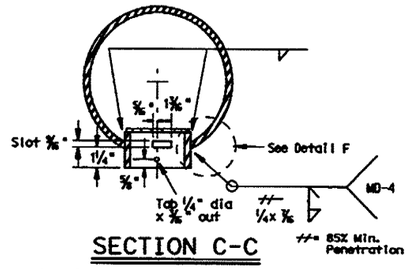
DETAIL A
(for pole with luminaire)



DETAIL E

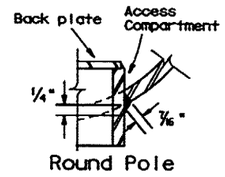


COUPLING DETAIL

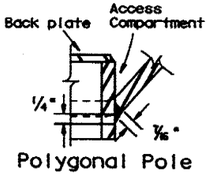


SECTION C-C

Opening for access compartment shall be no more than ⅛ inch wider than the access compartment itself.

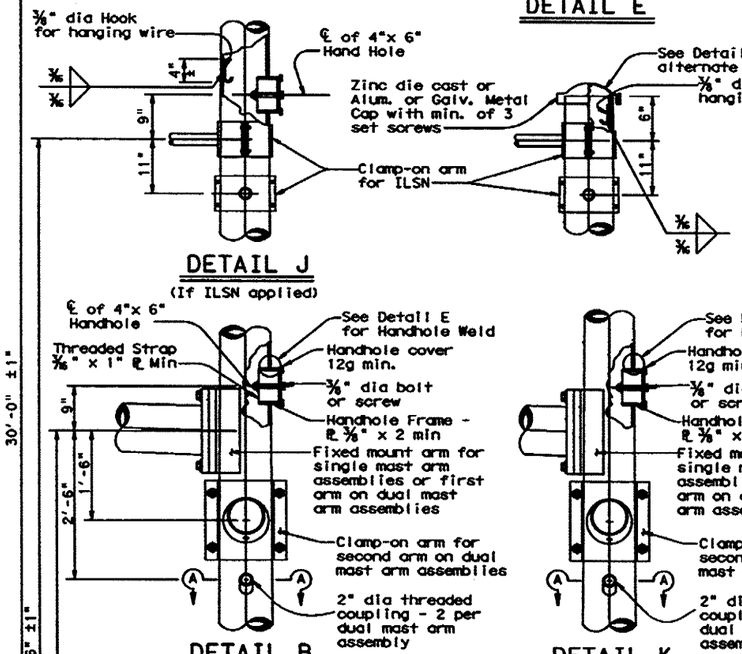


Round Pole

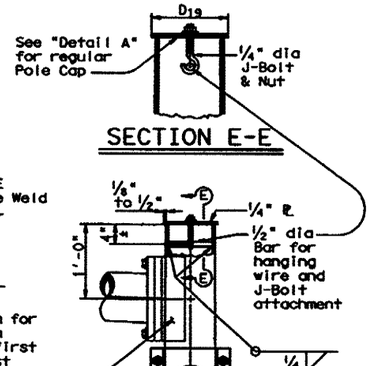


Polygonal Pole

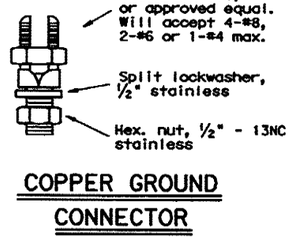
DETAIL F



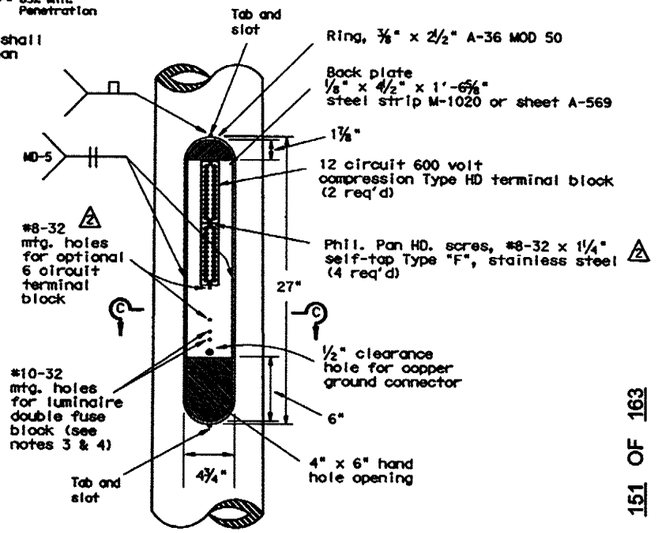
DETAIL J
(If ILSN applied)



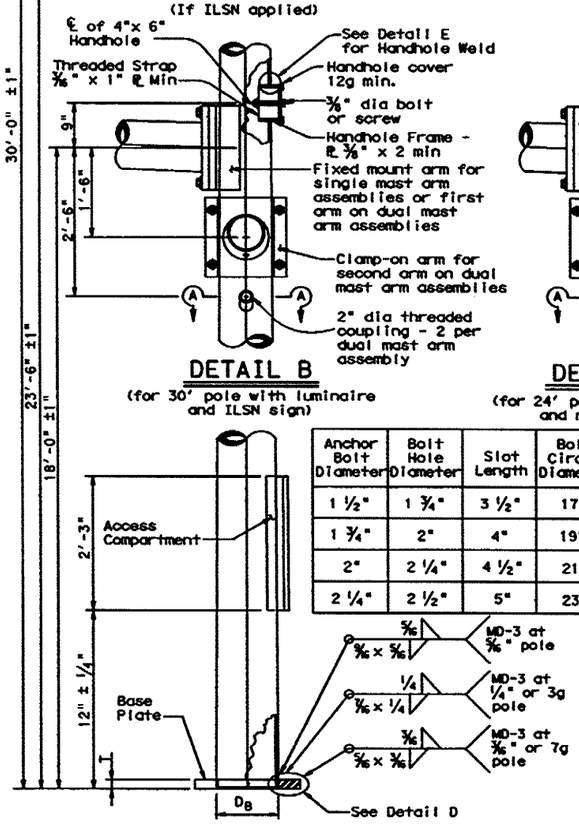
SECTION E-E



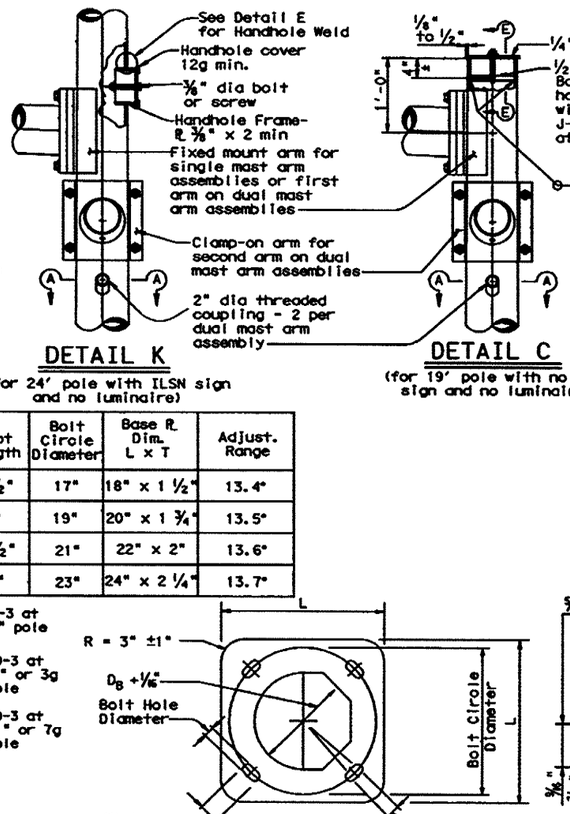
COPPER GROUND CONNECTOR



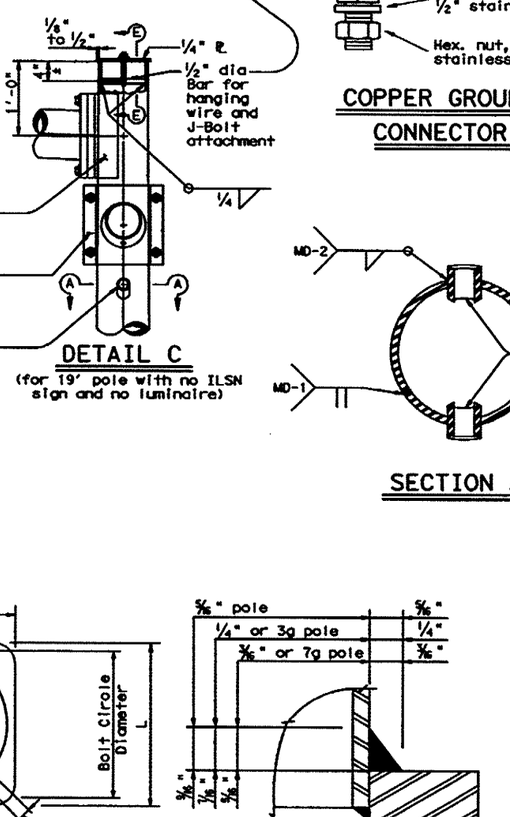
ACCESS COMPARTMENT



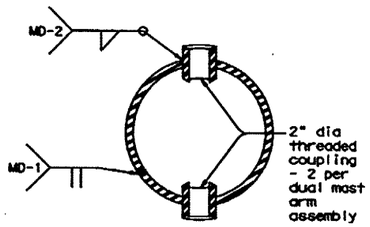
DETAIL B
(for 30' pole with luminaire and ILSN sign)



DETAIL K
(for 24' pole with ILSN sign and no luminaire)



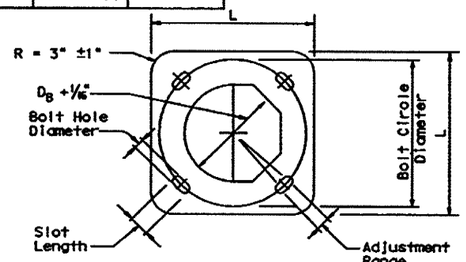
DETAIL C
(for 19' pole with no ILSN sign and no luminaire)



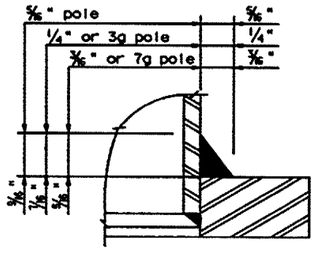
SECTION A-A

Anchor Bolt Diameter	Bolt Hole Diameter	Slot Length	Bolt Circle Diameter	Base ℄ Dim. L x T	Adjust. Range
1 ½"	1 ¾"	3 ½"	17"	18" x 1 ½"	13.4°
1 ¾"	2"	4"	19"	20" x 1 ¾"	13.5°
2"	2 ¼"	4 ½"	21"	22" x 2"	13.6°
2 ¼"	2 ½"	5"	23"	24" x 2 ¼"	13.7°

POLE ELEVATION



BASE PLATE PLAN



DETAIL D

1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1¼" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12T13, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #985GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #L60030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.

10/03 Revision
Revised notes, and remove detail.

2/07 Revision
Revised dimension of terminal-block screw.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES MAST ARM POLE DETAILS

MA-D-07

REVISIONS	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
8-99	CONT	SECT	JOB	HIGHWAY
10-00				
10-03				
2-07	DIST	COUNTY		SHEET NO.

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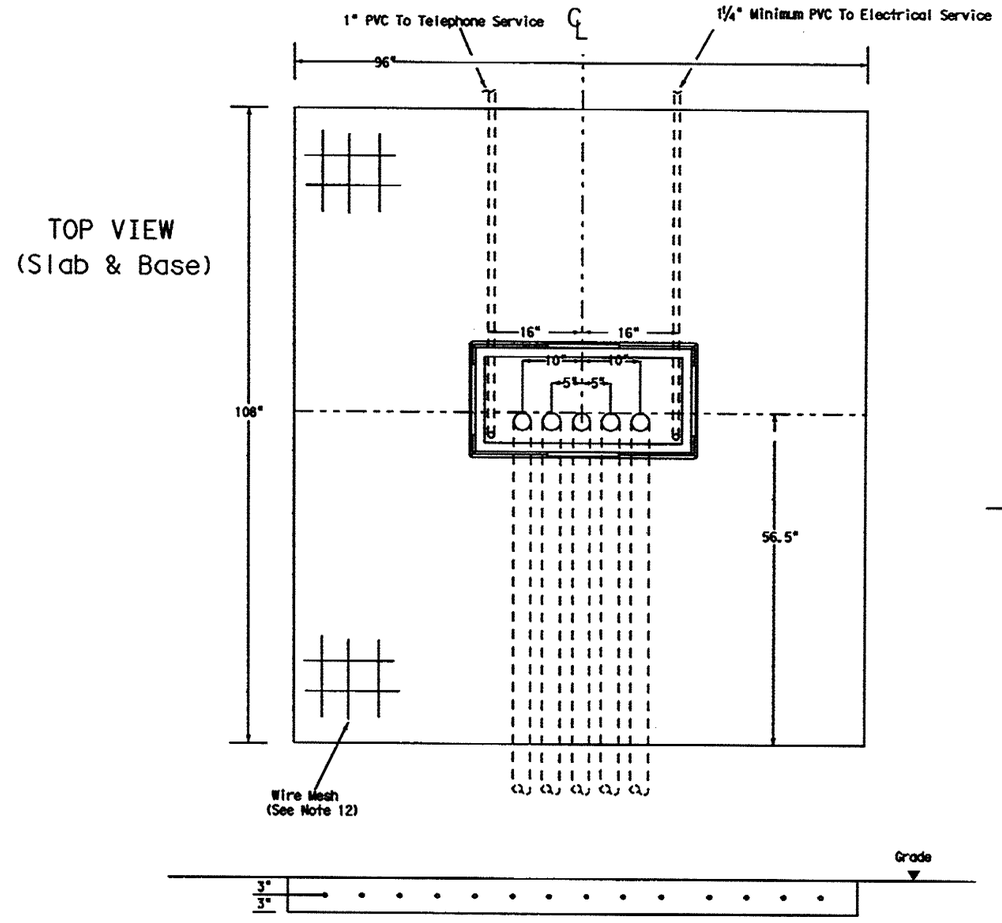
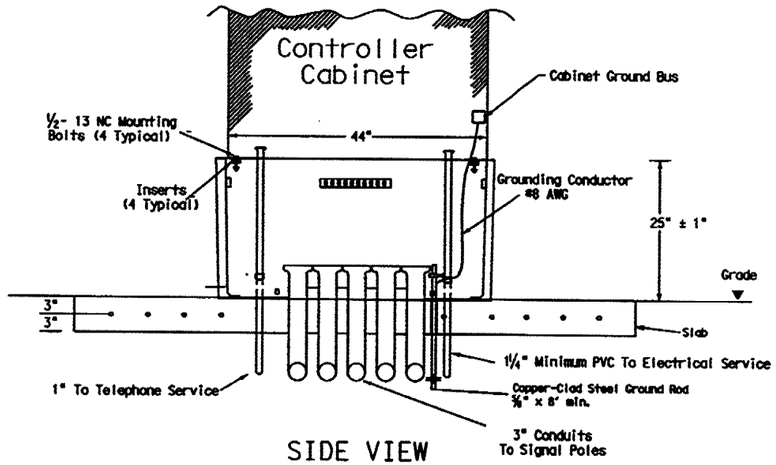
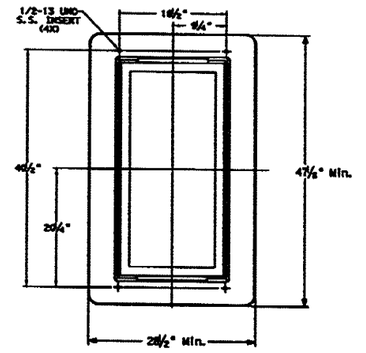


TOP VIEW
(Slab & Base)



SIDE VIEW
(Slab & Base)



CABINET BASE

TRAFFIC SIGNAL CONTROLLER BASE:

1. Provide a traffic signal controller base (cabinet base) manufactured of polymer concrete material consisting of calcareous and siliceous stone; glass fibers and thermoset polyester resin. The polymer concrete cabinet base must be reinforced on the inside of the cabinet base with fiberglass matting. Provide one of the following bases: Armorcast Part # A60018483X24, Quazite Model # PG3048Z708, or other as approved by TxDOT Traffic Operation Division.
2. The polymer concrete material must have a minimum compressive strength of 10,300 pounds per square inch (psi), minimum flexural strength of 3600 psi, and minimum shear strength of 3600 psi.
3. The polymer concrete cabinet base must conform to the dimensions shown and must accommodate a standard TxDOT basemount cabinet.
4. Supply the cabinet base with four ½"-13 UNC stainless steel inserts for attachment of the cabinet to the base. Inserts must withstand a minimum torque of 50 ft-lb and a minimum straight pull out strength of 750 lbs.
5. Provide the cabinet base with 4 cable racks mounted one on each side of the base 2" to 7 " from the top edge of the base. Unless approved otherwise, cable racks must be 1-1/2 x ⅜ x ⅜ inch steel channel with eight T-slots spaced at 1-1/2 inches. The cable racks must easily accommodate the insertion of tie wraps to attach field wiring to the racks to serve as strain relief. Secure cable racks to the base using ½"-13 UNC stainless steel screws and inserts.
6. The cabinet base, when secured to the concrete slab with controller cabinet attached, must withstand a minimum wind load of 125 mph or a 850 lb force applied at 49" above the bottom of the base without causing the base or cabinet to come out of their anchored position or cause any permanent deformation. The manufacturer must supply certification by an independent testing laboratory or sealed by a Texas Licensed Professional Engineer. Provide the cabinet base with hardware for attachment to a concrete slab.
7. The traffic signal base must be permanently marked either by impress or by permanent ink with the manufacturer's model number and name or logo.
8. Seal the base to the concrete with a silicone caulk bead and fastened to the slab per manufacturer's instructions.

CONCRETE SLAB:

9. Traffic signal controller pad must be a portland cement concrete slab poured in place, must conform to the dimensions shown, and must be level.
10. Bond a #8 AWG copper ground wire and an 8 ft ground rod bonded to the reinforcing mesh by a suitable UL Listed clamp and terminated to the cabinet grounding bus for the purpose of providing a local ground for the electrical grounding conductor. The electrical grounding conductor specified in Item 680-3.A.4 is required and must be terminated to the cabinet ground bus.
11. Install a PVC sleeve to prevent the ground rod from direct embedment in the slab.
12. Provide welded wire mesh 6X6-W2.9 X W2.9 for reinforcement. Provide joints and splices in the mesh with a minimum 6-inch overlap. Center the mesh between top and bottom and provide a minimum 3 inch cover on the edges.
13. Provide Class B concrete minimum for the slab in accordance with Item 421. Construct the slab in accordance with Item 531.

CONDUITS:

14. Stub up and run 3-inch conduits through the slab to the various traffic signal poles and ground boxes as shown on the layouts. Install the number of conduits as shown on layouts plus two additional 3 inch conduits for future use. Terminate the conduits with a bushing between 2 and 4-inches above the slab.
15. Extend conduits for future use at least 18-inches from the edge of the slab, terminate underground with a coupling, and cap and seal so that the seal can be removed without damaging the coupling. This must also apply to unused telephone conduit.
16. Stub up two separate conduits through the slab from the electrical and telephone services. Run the conduit for the electrical feed directly to the electrical service enclosure. Run the conduit for the telephone line directly to the telephone service, usually located on the same pole as the electrical service. Telephone must not under any circumstance share a conduit with any other function.
17. Terminate electric and telephone conduits above the slab with a coupling. After the base is installed, extend the conduits above the top of the base and secure to the base using a steel one-hole strap or similar suitable substitute.

CONTROLLER CABINET:

18. Anchor the controller cabinet to the base using four stainless steel 1/2-13 NC bolts.
19. The silicone caulk bead specified in Item 680.3.B must be RTV 133.

PAYMENT:

20. Bid TS-CF as subsidiary to Item 680.

Texas Department of Transportation
Traffic Operations Division

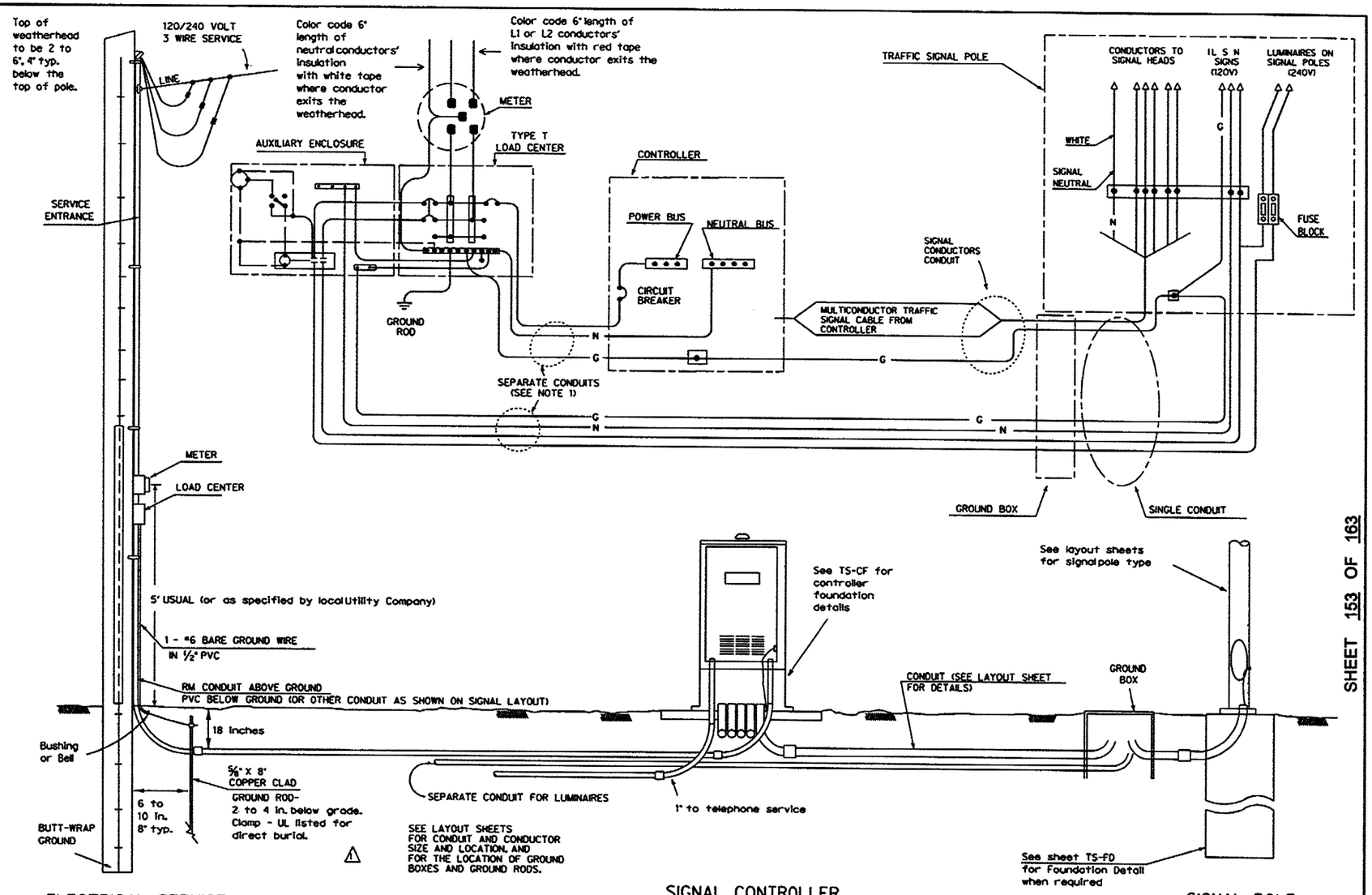
TRAFFIC SIGNAL CONTROLLER CABINET BASE AND PAD

TS-CF-04

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
REVISIONS			
12-04			
DIST	COUNTY		SHEET NO.

NOTES:

1. Luminaire conductors shall not be looped through controller cabinet.
2. Electrical system to include an equipment grounding conductor noted here as "G". All exposed metal parts are to be bonded to grounding conductor.
3. Photocell, when required, shall be mounted at top of pole or in enclosure as shown on ED(4) and ED(5) and as required by descriptive code.
4. Roadway lighting fixtures, when required, shall be in accordance with the material and construction methods of the Item, "Roadway Illumination Assemblies" except for the test period for proper operation of the luminaires. Installed roadway lighting luminaires and internally lighted street name signs shall be tested for proper operation as a part of the associated traffic signal system.
5. Internally lighted street name signs (ILSN), when required, shall be in accordance with the Item "Internally Lighted Street Name Signs". Because of the electrical isolation of ILSN hinges, a #12 green grounding conductor shall be run to the ILSN fixture.
6. Install ground rod at alternate location when directed by the Engineer. Maintain a minimum of 8 ft in contact with the earth.
7. Liquidtight flexible metal conduit (LFMC), may be used when meter and service enclosure are mounted 90 to 180 degrees to each other. LFMC shall be same size as service entrance conduit. LFMC shall not exceed 3 ft. and shall be securely supported within one foot of each end. No strap required for a LFMC shorter than 12". Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. A neutral conductor must be installed within the LFMC. Bend in liquidtight flexible metal conduit shall not exceed 180 degrees.
8. Minimum embedment depth as per Item 627 Treated Timber Poles.
9. Pole to be set plumb.
10. Back fill thoroughly tamped in 6 in. lifts. Place 6 inches additional backfill above grade around pole base to allow for settling, as per Item 627.
11. Excess pole length shall be trimmed from the top at a slope to aid water run off.
12. Gain pole two places for each meter, service, separate or auxiliary enclosure. See ED(4) for details.
13. All illumination and power conductors to be pull tested and megged. Do not meg traffic signal cable.
14. Enclosures are to be locked, and ground box covers are to be bolted before power is applied to the circuit.
15. Conduits entering top of enclosures to be fitted with conduit sealing hub or threaded boss, such as meter hub. Off-set nipple, when required, shall not be zinc-die-pressure cast. All metal conduits not connected to conduit sealing hub, or threaded boss must have a grounding bushing. Terminate bonding jumper to ground bus. All conduits entering enclosures shall be sealed. Silicone shall not be allowed.



ELECTRICAL SERVICE

(TYPE T TIMBER POLE SHOWN AS EXAMPLE. SEE ELECTRICAL DETAILS, LAYOUT SHEETS, AND ELECTRICAL SERVICE DATA SHEET FOR SERVICE REQUIRED AND FOR DETAILS.)

SIGNAL CONTROLLER

SIGNAL POLE

Unless shown elsewhere in the plans, electrical service data for Types D and T shall be as follows.

ELECTRICAL SERVICE DATA

ELECTRICAL SERVICE DESCRIPTION(SEE ED(4))	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT. BRK. POLE/AMP	TWO-POLE CONTACTOR AMPS ***	PANELBD./ LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/AMPS	KVA LOAD
TY D (120/240)070(NS)AL(E)**(•)	1¼ ⚠1	3/#4	N/A	2P/70	30	100	T.S. Lighting	1P/50 2P/15	<7.1
TY T (120/240)000(NS)GS(E)**(•)	1¼ ⚠1	3/#4	N/A	None	30	70	T.S. Lighting	1P/50 2P/15	<7.1

*** Eliminate photocell, contactor and seperate enclosure if lighting, or internally lighted signs are not required by plans
** See descriptive code in estimate for service support type.
• See descriptive code in estimate for overhead or underground service.

5/03 Revision
⚠1 Revised notes.

Texas Department of Transportation
Traffic Operations Division

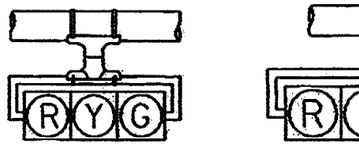
ELECTRICAL DETAILS- TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

ED(7)-03

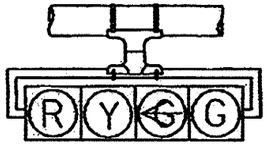
REVISIONS	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
4-98	CONT	SECT	JOB	HIGHWAY
12-00				
3-03				
5-03	DIST	COUNTY		SHEET NO.

DATE:
FILE:

SHEET 153 OF 163



H3



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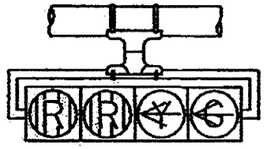

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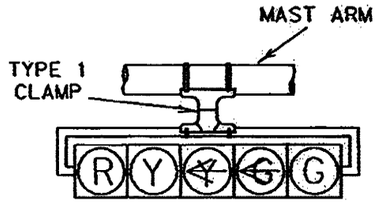

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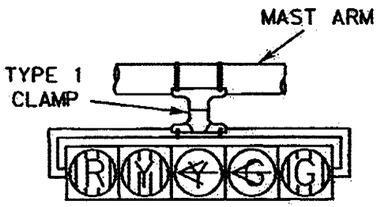

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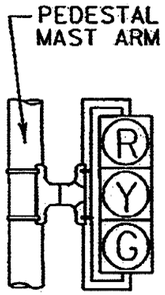
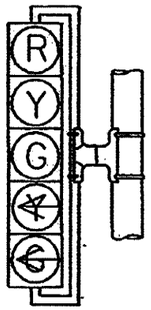
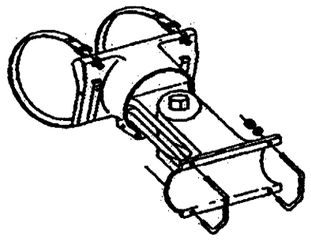


V3



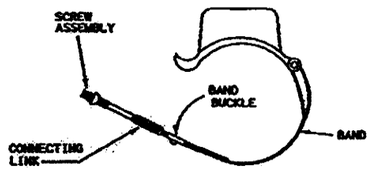
V5LT

NOTE:
VERTICAL LOUVERS SHALL BE INSTALLED ON HORIZONTAL MOUNTED SIGNALS, HORIZONTAL LOUVERS SHALL BE INSTALLED ON VERTICAL MOUNTED SIGNAL WHEN NEEDED.



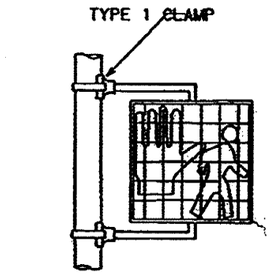
TYPE 2 CLAMP KIT

SHALL BE INSTALLED WHEN ROTATION ABOUT THE HORIZONTAL AND VERTICAL AXES ARE NEEDED.

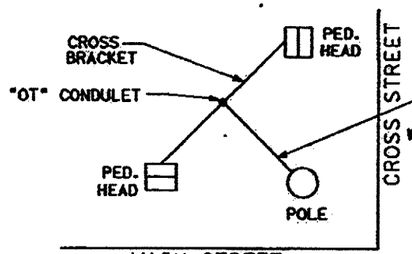


TYPE 1 CLAMP

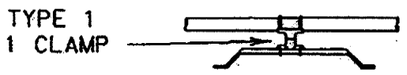
⚠1 NOTE:
CLAM SHELL MOUNTING HARDWARE MAY BE USED INSTEAD OF MOUNTING HARDWARE SHOWN ABOVE, AS APPROVED BY THE ENGINEER. ICC P/N 4805 OR OR McCAIN QUICKMOUNT OR APPROVED EQUAL.



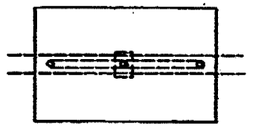
PEDESTRIAN SIGNAL HEAD MOUNTING FOR ONE PEDESTRIAN SIGNAL HEAD
152A



PEDESTRIAN SIGNAL HEAD MOUNTING FOR TWO PEDESTRIAN SIGNAL HEADS
143C



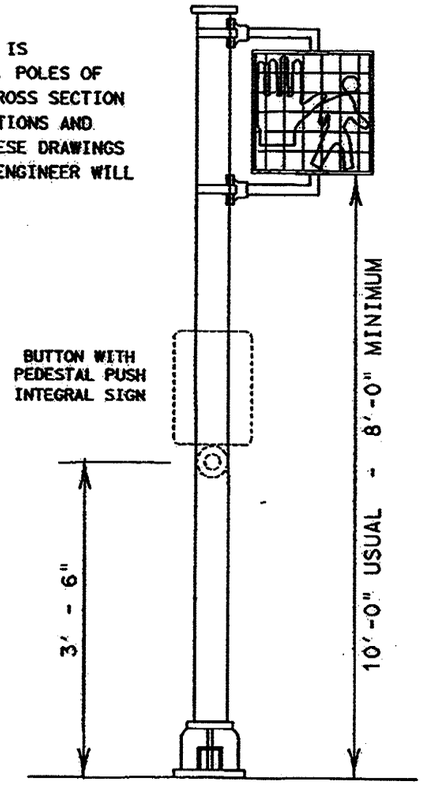
* ONE (1) CLAMP SHALL BE USED ON SIGNS LESS THAN OR EQUAL TO 10 FT IN LENGTH.
* TWO (2) CLAMPS SHALL BE USED ON SIGNS GREATER THAN 10 FT IN LENGTH.



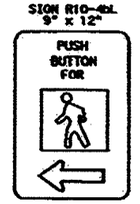
SIGN OR DAMPENING DEVICE ATTACHMENT FOR MAST ARMS

NOTE:

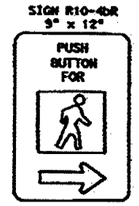
THE POLE ON THIS DRAWING IS SHOWN AS AN EXAMPLE ONLY. POLES OF SIMILAR DESIGN FOR ANY CROSS SECTION WHICH MEET THE SPECIFICATIONS AND REQUIREMENTS SHOWN ON THESE DRAWINGS AND ARE APPROVED BY THE ENGINEER WILL BE DEEMED ACCEPTABLE.



PEDESTAL POLE



PEDESTRIAN PUSHBUTTON SIGN DETAILS



PEDESTRIAN PUSHBUTTON SIGN DETAILS

SHEET 154 OF 163

NOTES:

1. VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH TYPE 1 CLAMP AND APPROPRIATE TUBING.
2. ALL POLE MOUNTED VEHICLE AND PEDESTRIAN HEADS SHALL BE INSTALLED ON THE AWAY-FROM-TRAFFIC SIDE OF THE PEDESTAL OR MAST ARM POLE.
3. ALL DAMPING DEVICES SHALL BE 18" TO 24" WIDE BY 4 FT IN LENGTH.
4. ALL WIRING FOR PEDESTRIAN SIGNALS SHALL BE TOTALLY ENCLOSED WITHIN THE SIGNAL MOUNTING HAREWARE.
5. ALL PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON SIGNS SHALL DISPLAY THE SYMBOLIZED MESSAGES SHOWN ABOVE.

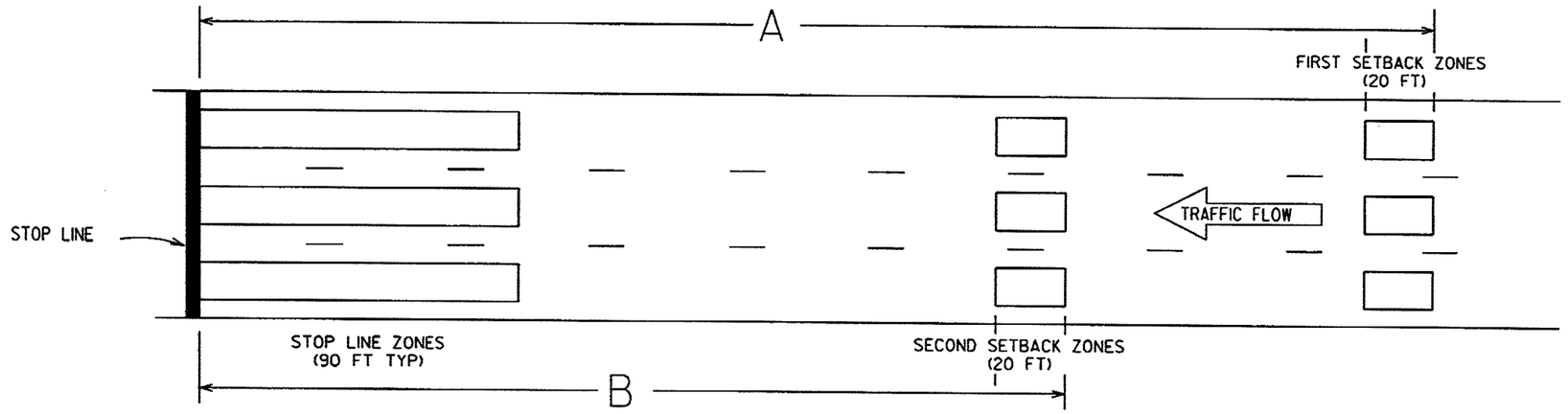
⚠1 ALTERNATIVE MOUNTING METHOD revised 12-92

* REVISED 3-7-97

DALLAS DISTRICT STANDARD

6		
STATE	STATE DIST.	COUNTY
TEXAS	DALLAS	DALLAS
DIST.	DIST.	JOB

TRAFFIC SIGNAL AND PEDESTRIAN HEAD IDENTIFICATION



ADVANCE DETECTION ZONE LAYOUT

APPROACH SPEED LIMIT (MPH)	DISTANCE A 1 (FT)	DISTANCE BETWEEN CAMERA AND STOP LINE (FT) 2	CAMERA HEIGHT (FT)									
			24	28	32	36	40	24	28	32	36	40
			DISTANCE B (FT)					EXTENSION ON 2ND DET. ZONE (SEC.)				
60	470	80	280	295	305	310	315	0.0	0.0	0.0	0.5	0.5
		150	270	285	295	300	310	0.0	0.0	0.0	0.0	0.5
55	430	80	255	265	275	280	285	0.0	0.0	0.0	0.5	0.5
		150	245	255	265	275	280	0.0	0.0	0.0	0.0	0.5
50	390	50	235	245	250	255	260	0.0	0.0	0.5	0.5	0.5
		150	220	230	240	245	250	0.0	0.0	0.0	0.0	0.5
45	350	50	210	215	220	225	230	0.0	0.0	0.5	0.5	0.5
		150	190	200	210	215	220	0.0	0.0	0.0	0.0	0.5

NOTES:
1. Distances shown are based on a 20' detection zone and a 1.0 second passage time setting.
2. Distance between the camera and the stop line, as measured parallel to the direction of travel.

Texas Department of Transportation

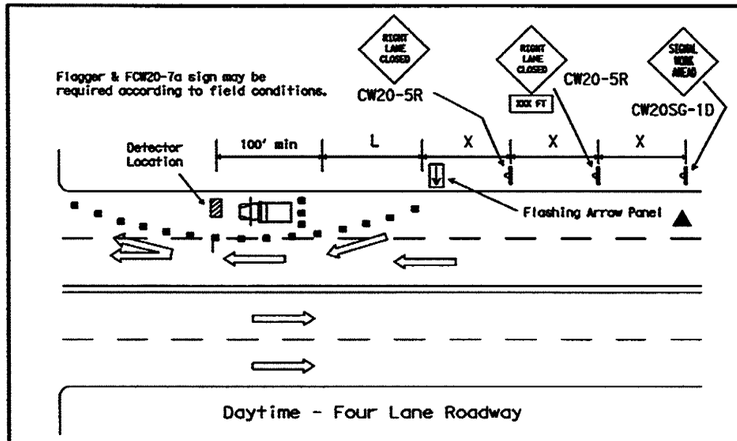
Dallas District

VIDEO DETECTION ZONE PLACEMENT

VDZ-04 (DAL)

©TxDOT September 2004	DN: THW	CK: CDB	DW: BES	CK: TRF-Aus.
REVISIONS 04/06/05	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
	6			Vitru
	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS		
	CONTROL	SECTION	JOB	

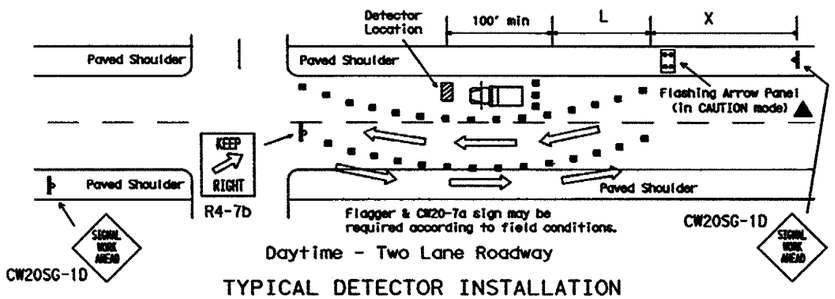
DATE:
FILE:



Daytime - Four Lane Roadway

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' offset	11' offset	12' offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	600'
65		650'	715'	780'	65'	130'-165'	700'
70		700'	770'	840'	70'	140'-175'	800'
75		750'	825'	900'	75'	150'-185'	900'

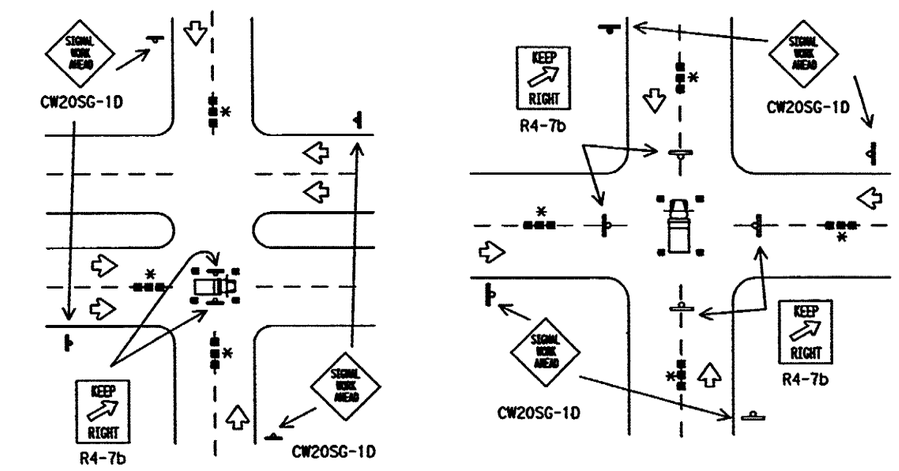
**Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)



Daytime - Two Lane Roadway

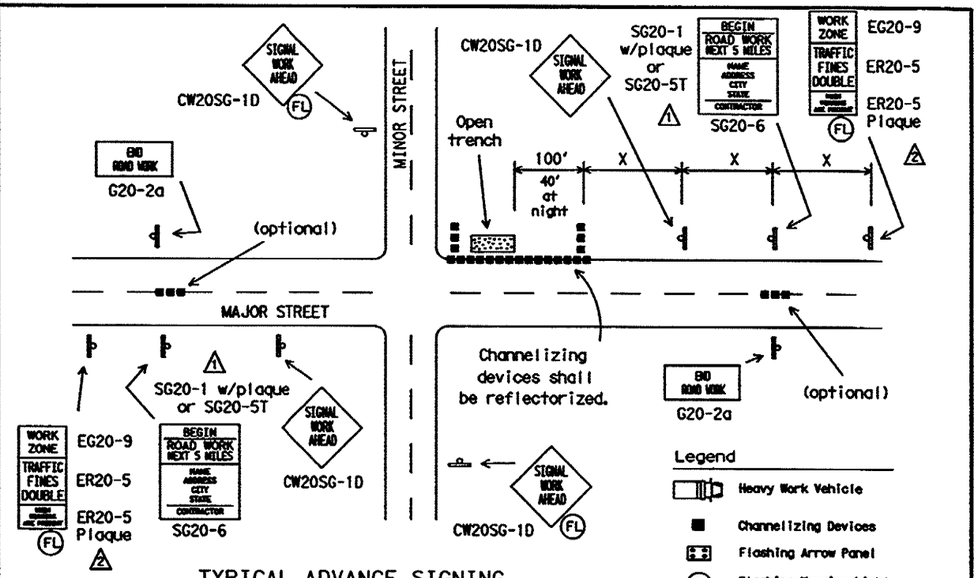
TYPICAL DETECTOR INSTALLATION
OR OTHER WORK OPERATIONS THAT ARE SHORT TERM OR SHORT DURATION

Nighttime Channelizing Devices shall be reflectorized.



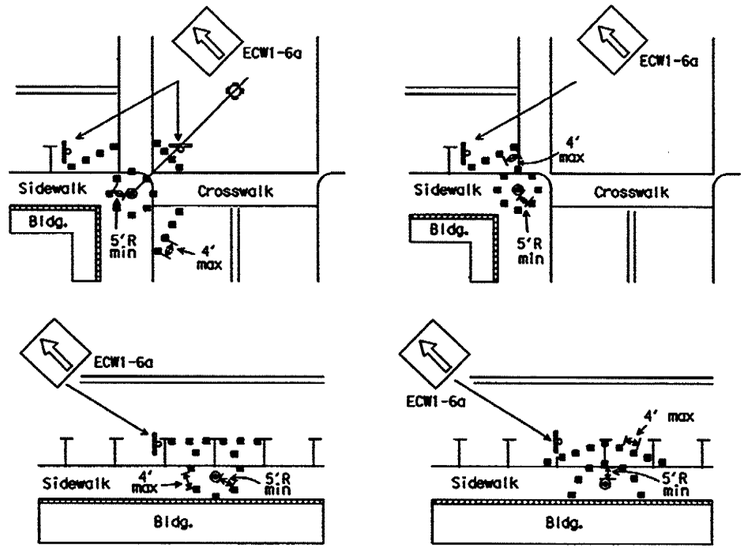
TYPICAL HANGING SIGNAL INSTALLATIONS
OR OTHER WORK OPERATIONS THAT ARE SHORT TERM OR SHORT DURATION

* Advance warning channelizing devices are optional.



TYPICAL ADVANCE SIGNING
FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

Observe Warning Signs State Law (R20-3) shall be required.
See BC(2).
Location will be as directed by the Engineer.



Channelizing devices should not be placed closer than 5 foot radius (minimum) to signal poles.
Parking may be eliminated by placing channelizing devices in spaces.
If pedestrian walkways are blocked, refer to the Texas Manual on Uniform Traffic Control Devices (TMUTCD) Part 6.

TYPICAL RESTRICTED PEDESTRIAN MOVEMENTS
FOR ALL WORK OPERATIONS REGARDLESS OF WORK DURATION

▲ The arrow panel may be omitted when stated elsewhere in the plans.

1. Typical channelizing device is the 28" cone.
2. Plastic drums or vertical panels may be used if approved by the Engineer.
3. For several closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits.
4. See details elsewhere in the plans for advance signing requirements.
5. Advance signs shall be in place when signal construction operations are in progress.
6. The contractor shall remove advance signs when no construction operations are underway.
7. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
8. All holes, trenches or other hazardous areas shall be adequately protected by lights or other protective devices.
9. Trenches shall be covered or surrounded with orange plastic construction fence as directed by the Engineer.
10. Flagger and FCW20-7a sign may be required according to field conditions.
11. Vehicles parked in roadway shall be equipped with two strobes.
12. High level flags at corners of vehicle may also be used.
13. Work operations that require work vehicle in traveled way 20 minutes or less may use cones, high level flags and strobes as advance warning devices.
14. Cones should only be placed around vehicle.
15. Flaggers may be used on high speed rural intersections.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL INSTALLATION TYPICAL DETAILS

SHEET 1 OF 2 WZ(BTS-1)-03

REVISIONS	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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4-98				
10-99				
3-03				

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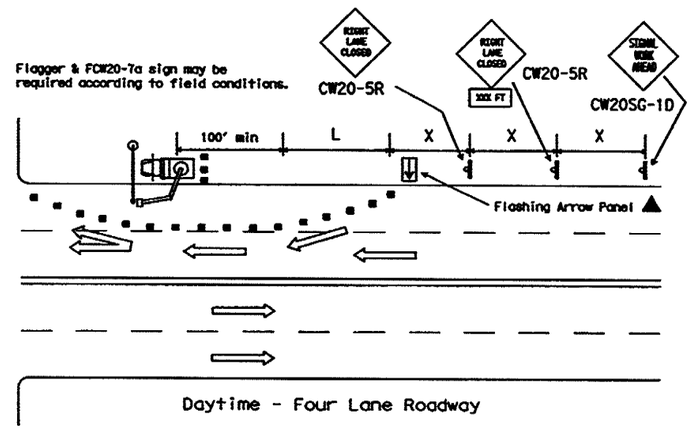
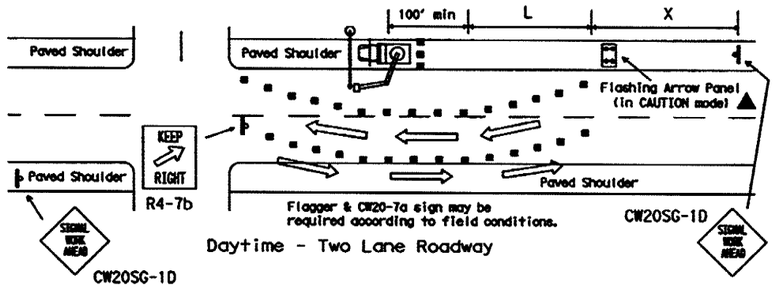
SHEET 156 156 OF 163

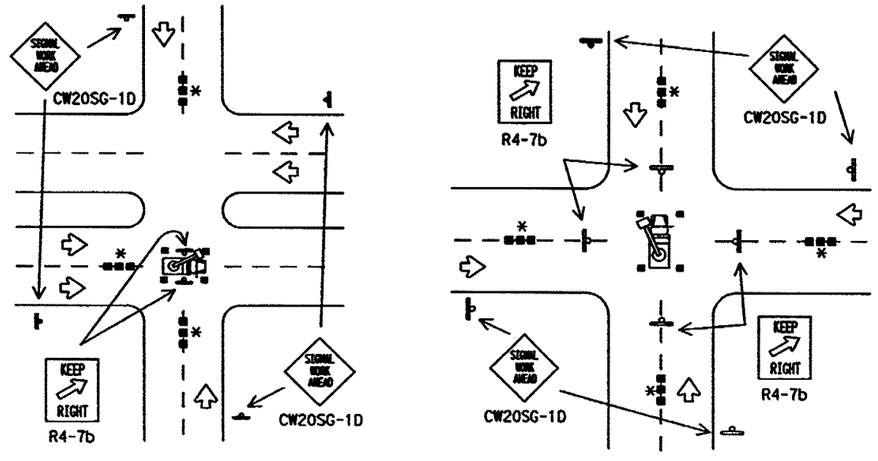
"ABOVE LANE" WORK PERFORMED BY BUCKET TRUCK





▲ The arrow panel may be omitted when stated elsewhere in the plans.

"ABOVE TRUCK" WORK PERFORMED BY BUCKET TRUCK



GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
6. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes. The additional signs requested by the Engineer/Inspector shall not be subsidiary.
7. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so that the Engineer can verify the correct procedures are being followed.
8. The contractor is responsible for sign installations and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
9. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1".
10. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

Duration of Work (as defined by the TMUTCD Part 6)

The types of sign supports, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring that the sign support and substrate meets crashworthiness and length of work requirements.

a. Long-term stationary is work that occupies a location more than 3 days.
b. Intermediate-term stationary is work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.
c. Short-term stationary is daytime work that occupies a location for more than 1 hour, but less than 12 hours.
d. Short duration is work that occupies a location up to 1 hour.
e. Mobile is work that moves intermittently or continuously.

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This type of sign support meets the crashworthiness standards regardless of the direction of impact. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face. These materials can damage the retroreflectivity of sign sheeting.
7. Signs shall be removed upon completion of the work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact.
6. Rubber (such as tire inner tubes) shall NOT be used for sandbags.
7. Rubber ballasts (such as those used with cones or edgeline channelizers) shall NOT be used as sign support weights.
8. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
9. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

DEPARTMENTAL MATERIAL SPECIFICATIONS

PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310
VINYL NON-REFLECTIVE SHEETING	DMS-8320

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE E (FLUORESCENT PRISMATIC)
WHITE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
WHITE	LEGEND & BORDERS	TYPE C (HIGH SPECIFIC INTENSITY)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE SHEETING

DATE:
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Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL INSTALLATION BARRICADES AND SIGNS

SHEET 2 OF 2 WZ(BTS-2)-03

REVISIONS	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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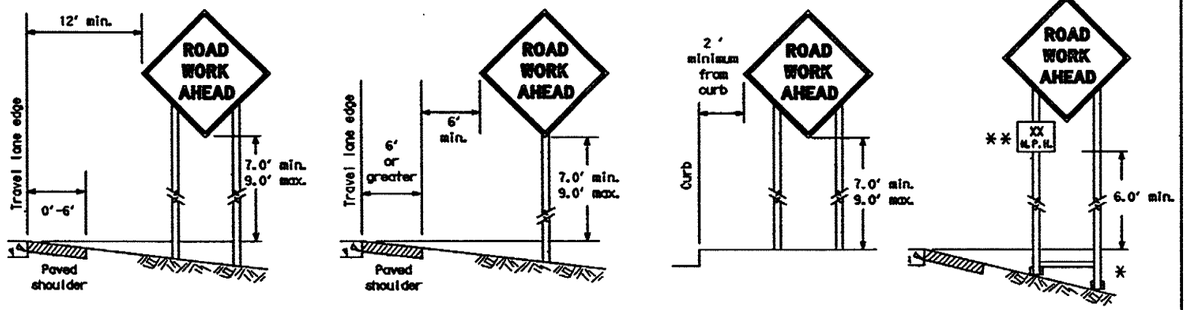
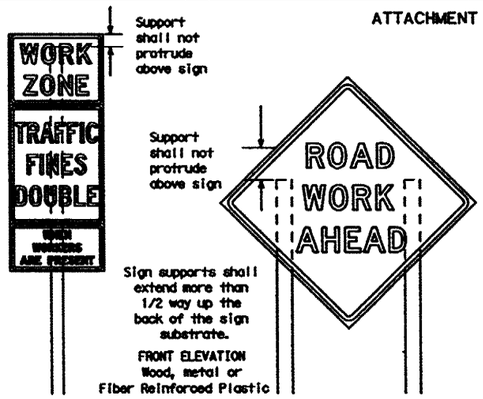
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



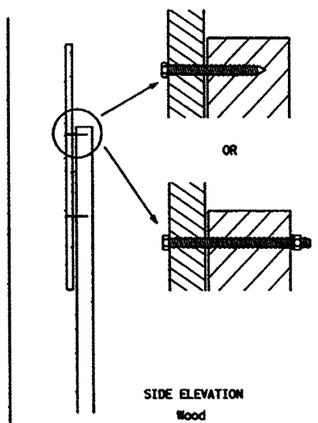
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same guage material.



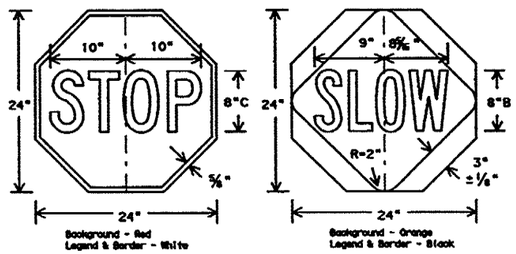
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails will NOT be allowed.

Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24" as detailed below.
2. When used at night, the STOP/SLOW paddle shall be retroreflectorized.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
6. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
7. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
8. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
9. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
10. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday. or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Engineer may allow the use of smaller size construction warning signs on secondary roads or city streets where speeds are low if the sign size is listed as an option on the "Typical Construction Warning Sign Size and Spacing" chart shown on BC(2).
2. The Contractor shall furnish the sign sizes shown in plans, the BC Sheets, the TCP sheets or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type C (High Specific Intensity), shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type E (Fluorescent Prismatic), shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This type of sign support meets the crashworthiness standards regardless of the direction of impact. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face. These materials can damage the retroreflectivity of sheeting.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact.
6. Rubber (such as tire inner tubes) shall NOT be used for sandbags.
7. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
8. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
9. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

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BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES STANDARD

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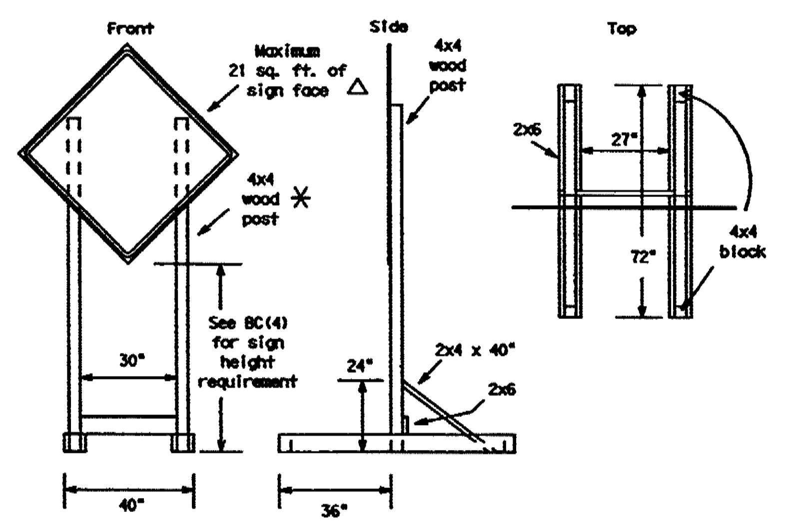
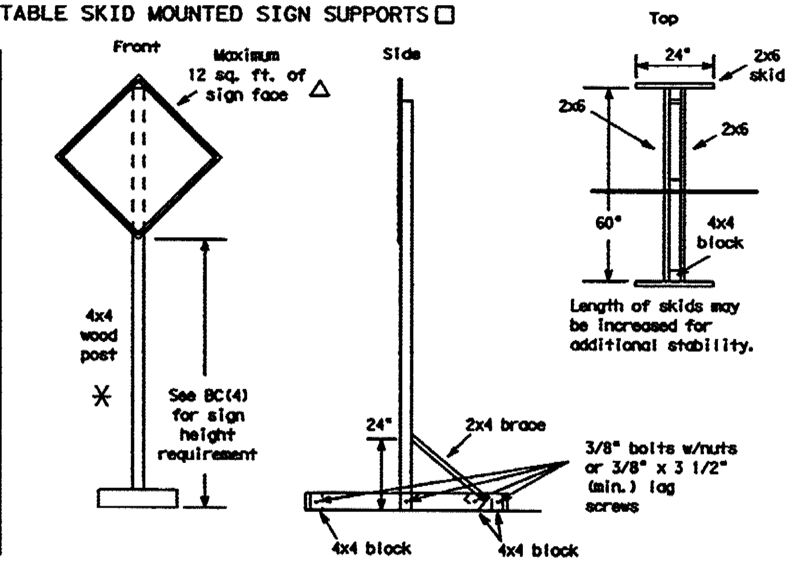
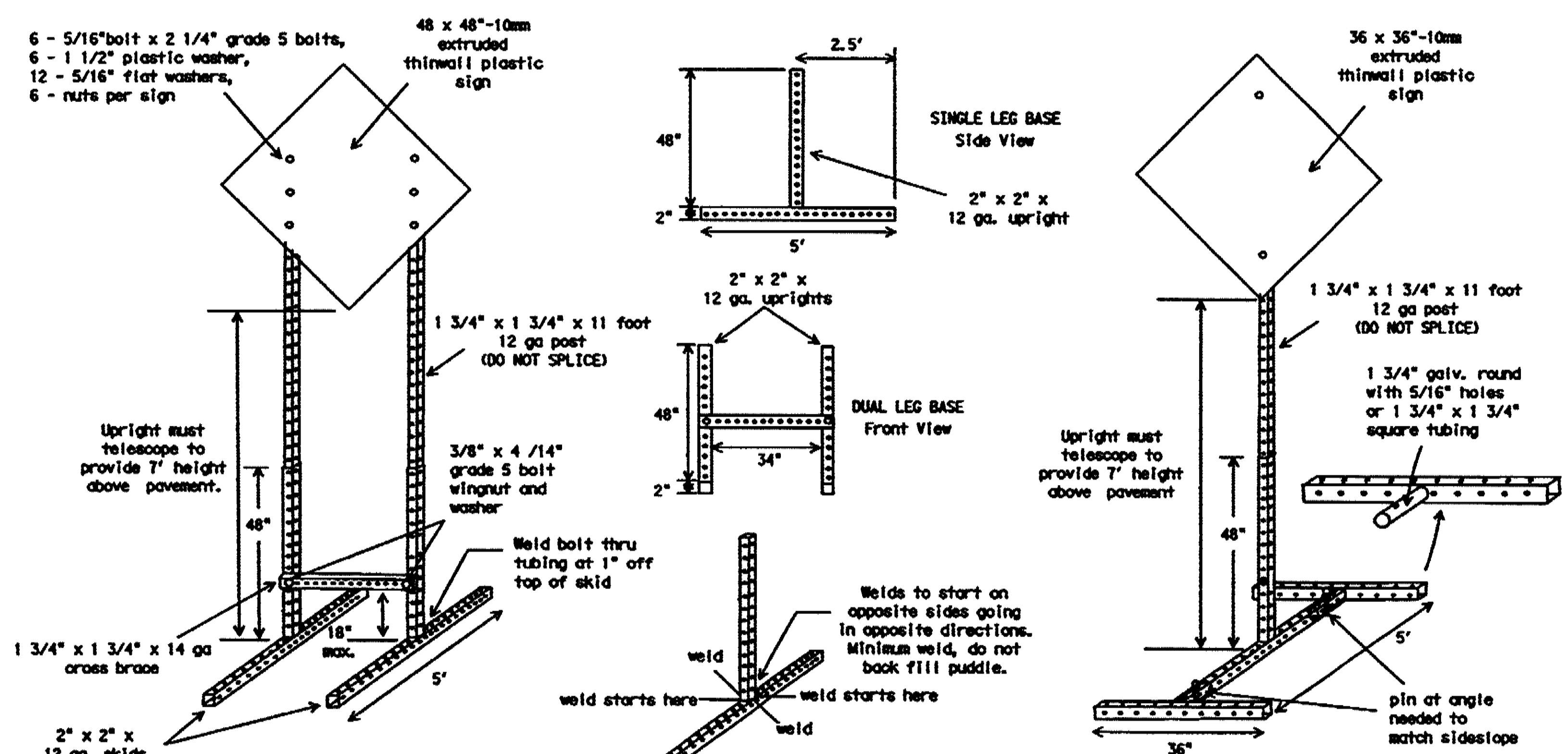
SKID MOUNTED WOOD SIGN SUPPORTS

LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □



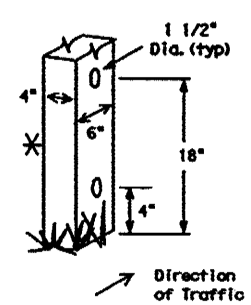


SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS



WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).



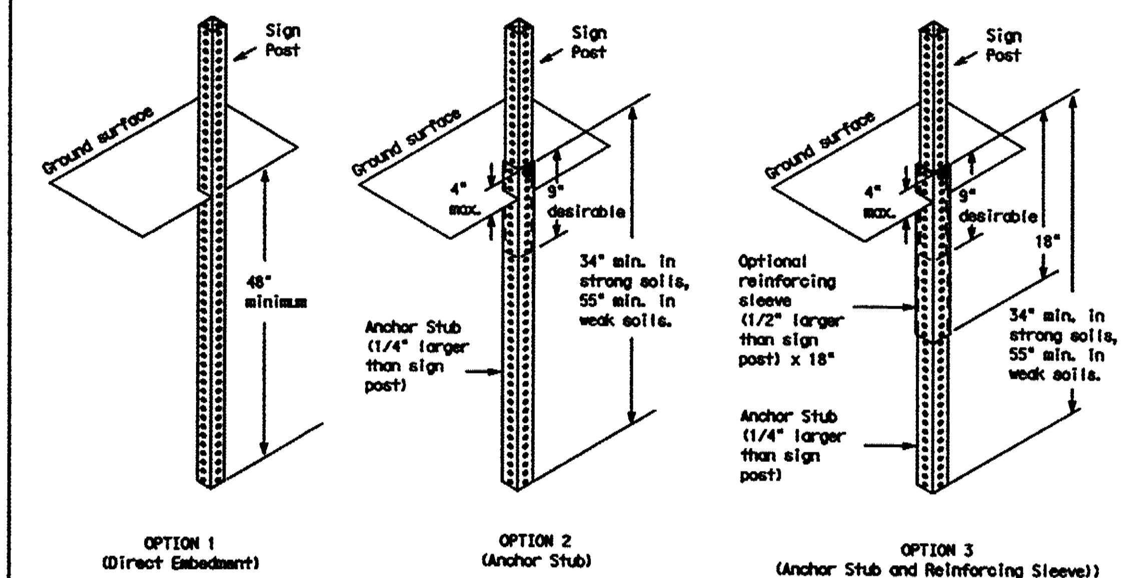
WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS

Nominal Post Size	No. of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

GROUND MOUNTED SIGN SUPPORTS

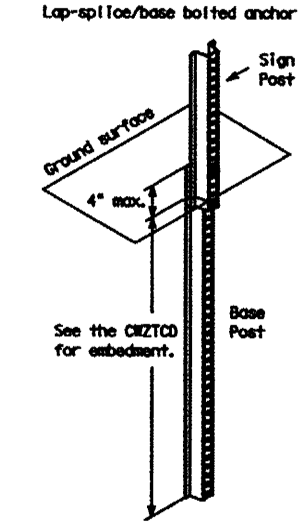
Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support. The maximum sign square footage shall adhere to the manufacturer's recommendation. Two post installations can be used for larger signs.

PERFORATED SQUARE METAL TUBING



WING CHANNEL

Lap-splice/base bolted anchor



GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. More details of approved Long/Intermediate and Short Term supports can be found on the CWZTCD list. See BC(1) for website location.
3. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
4. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

□ See BC(4) for definition of "Work Duration."

✳ Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

△ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

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BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT STANDARD

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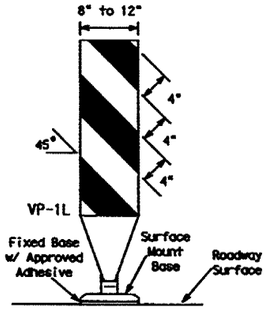
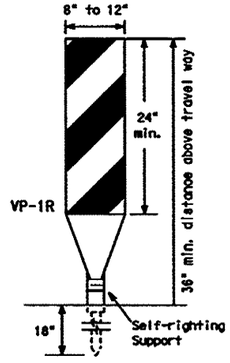
CHANNELIZING DEVICES

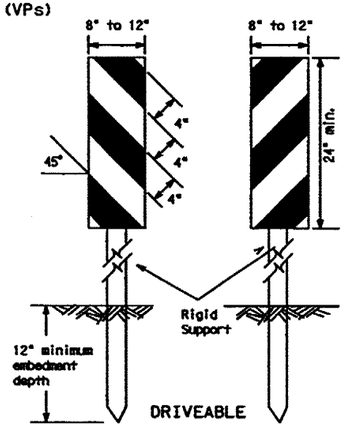
VERTICAL PANELS (VPs)



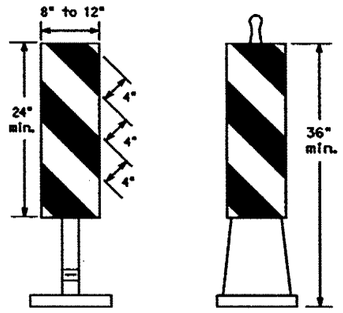
FIXED

(Rigid or self-righting)





DRIVEABLE

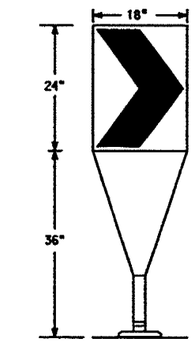


PORTABLE

(Rigid or self-righting)

1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B "Treatment of Pavement Drop-offs in Work Zones" for additional guidelines on the use of VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of curb adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, shall have a minimum of 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is greater than 36 inches, a panel stripe of 6 inches shall be used.

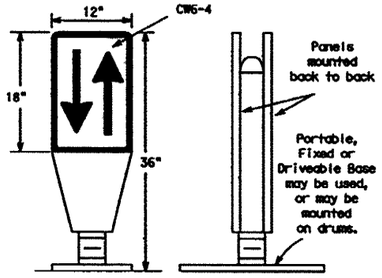
CHEVRONS



Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type E (Fluorescent Prismatic) conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall be black vinyl non-reflective decal sheeting meeting the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with simple tubular markers or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. Tubular markers or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black nonreflective legend. Sheeting for the OTLD shall be retroreflective Type E (Fluorescent Prismatic) conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall be black vinyl non-reflective decal sheeting meeting the requirements of DMS-8300.

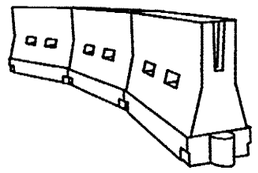
GENERAL NOTES:

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh approximately 35 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.
8. Examples on this sheet are commonly used channelizing devices in work zones. For other devices, refer to the CWZTCD.

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices 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		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'
75		750'	825'	900'	75'	150'-185'
80		800'	880'	960'	80'	160'-195'

**Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS



LONGITUDINAL CHANNELIZING DEVICES

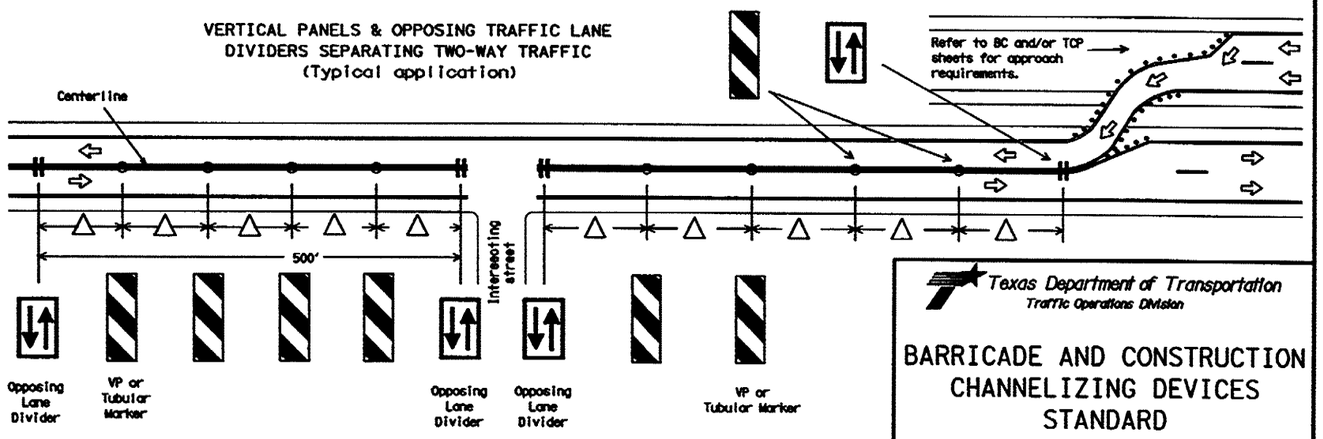
1. Longitudinal channelizing devices are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. Longitudinal channelizing devices may be used instead of a line of cones or drums.
3. Longitudinal channelizing devices shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Longitudinal channelizing devices should not be used to provide positive protection for obstacles, pedestrians or workers.
5. Longitudinal channelizing devices shall be retroreflective, or supplemented with retroreflective delineation as required for temporary barriers on BC(7)-07.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall be not less than 32 inches in height.

VERTICAL PANELS & OPPOSING TRAFFIC LANE DIVIDERS SEPARATING TWO-WAY TRAFFIC (Typical application)



△ Spacing between the VP's or tubular markers shall not exceed 100 feet. On roadways with speeds less than 45 MPH, spacing between the tubular markers or VP's shall be as shown on the channelizing spacing table shown on this page. If the table shows spacing greater than 100 feet based on the roadway speed, then use a maximum of 100 feet spacing between the tubular markers or VP's. Every fifth channelizing device shall be an OTLD, except when the OLTD must be spaced closer to accomodate an intersection. Spacing between the OTLD shall not exceed 500 feet.

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES STANDARD

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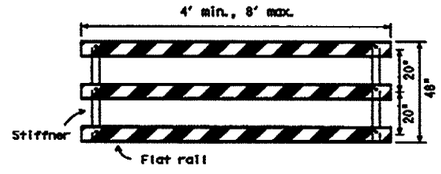
TYPE III BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type III Barricades and a list of all materials used in the construction of Type III Barricades.
2. Type III Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.

TYPICAL STRIPING DETAIL FOR BARRICADE RAIL

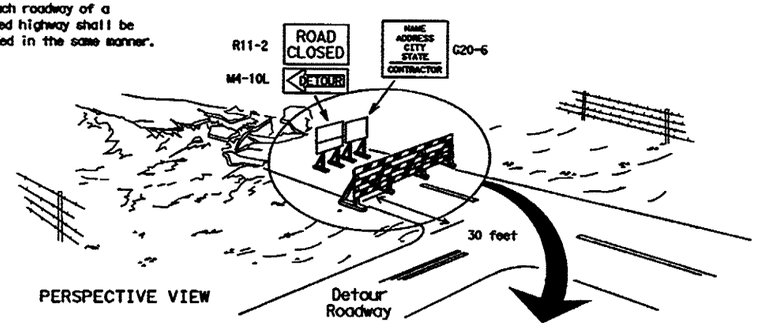
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES



Stiffner may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

TYPE III BARRICADE (POST AND SKID) TYPICAL APPLICATION

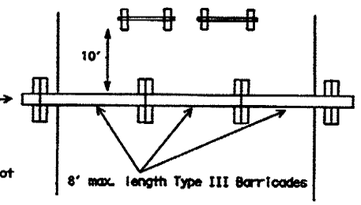
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

The three rails on Type III barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

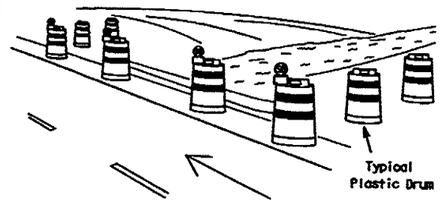
Barricade striping should slant downward in the direction of detour.



1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type III Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

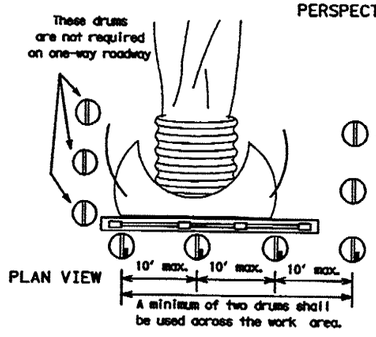
PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



PERSPECTIVE VIEW

1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



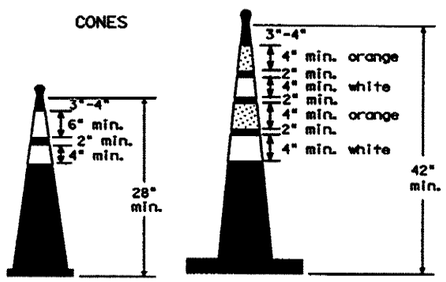
PLAN VIEW

Increase number of plastic drums on the side of approaching traffic if the crown width makes it necessary. (minimum of 2 and maximum of 4 drums)

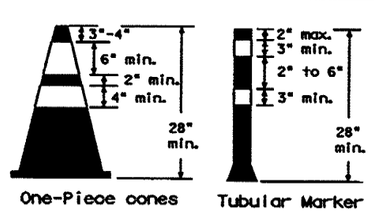
Legend

- Plastic drum
- Plastic drum with steady burn light or yellow warning reflector
- SB — Steady burn warning light or yellow warning reflector

CONES



Two-Piece cones



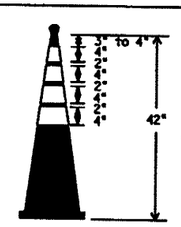
One-Piece cones

Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

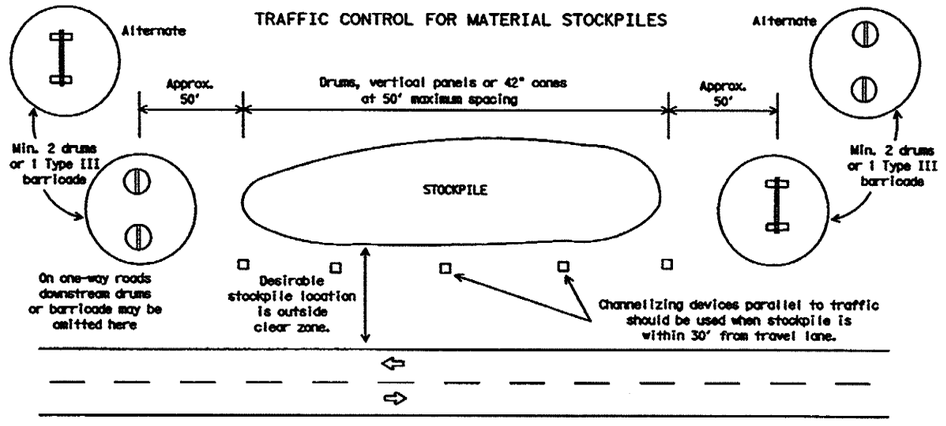
1. Traffic cones and tubular markers shall be a minimum of 28 inches in height when used either on freeways or at nighttime.
2. Cones or tubular markers shall be predominantly orange, fluorescent red-orange, or fluorescent yellow-orange. They should be kept clean and bright for maximum visibility.
3. Cones used only for daytime operations do not require the reflectorized bands.
4. Cones and tubular markers used for nighttime operations shall be reflectorized. Reflectorized material shall have a smooth, sealed outer surface that displays the same approximate color during the day and night. The reflectorized bands shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
5. When used at night, appropriate personnel shall ensure that cones and tubular markers remain in their proper location and in an upright position.
6. Reflectorization of 28"cones shall consist of a minimum 6 inch band placed at least 3 inches but not more than 4 inches from the top, supplemented by a minimum 4 inch band spaced a minimum of 2 inches below the 6 inch band.
7. Reflectorization of 42" cones shall be provided by alternating 4 to 6" orange and white stripes with orange on top.
8. Reflectorization of tubular markers shall be a minimum of two 3 inch bands placed a maximum of 2 inches from the top with a maximum of 6 inches between bands.
9. One-piece cones or tubular markers are generally suitable for temporary usage (up to 8 hours) with other channelization devices such as vertical panels, drums or two-piece cones for long term usage. Care should be taken to ensure they remain in their proper location and in an upright position.
10. Cones or tubular markers used on each project shall be of the same size and shape.
11. The handle may be designed as a hook or other shape, fabricated from non-rigid materials similar to the cone material, and may extend up to a maximum of 8 inches above the top of cone. Length of the handle shall not be considered with regard to the overall height of the cone.



EDGELINE CHANNELIZER

1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type C encapsulated bead (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

TRAFFIC CONTROL FOR MATERIAL STOCKPILES



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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES STANDARD

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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

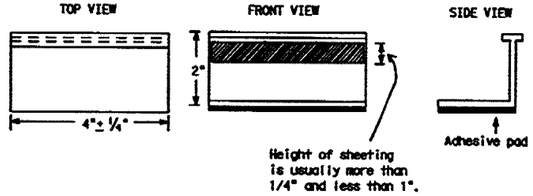
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway, shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than two weeks, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

Raised Pavement Markers used as Guidemarks

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS

PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PREFABRICATED PAVEMENT MARKINGS-PERMANENT	DMS-8240
PREFABRICATED PAVEMENT MARKINGS-REMOVABLE	DMS-8241
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

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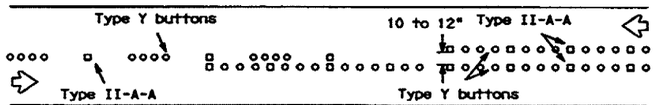
PAVEMENT MARKING PATTERNS

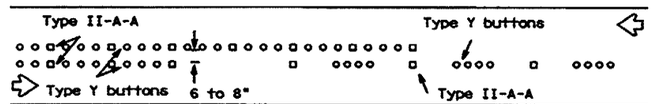
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS

REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A

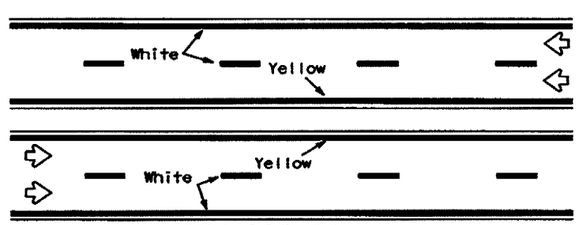
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



RAISED PAVEMENT MARKERS - PATTERN B

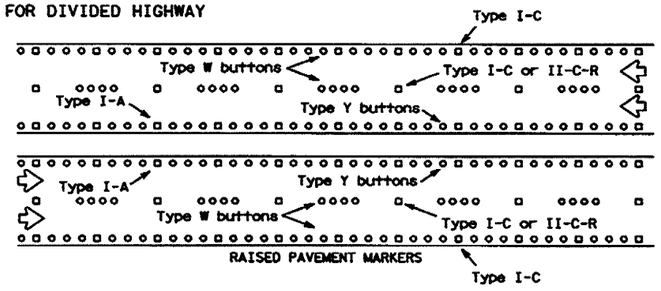
Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer.
Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



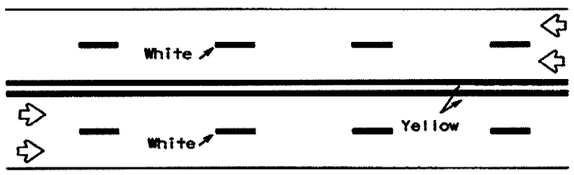
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



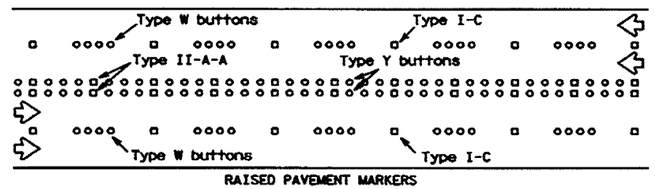
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



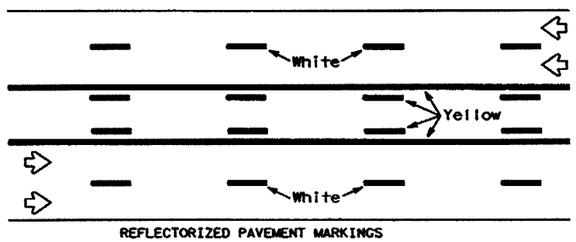
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



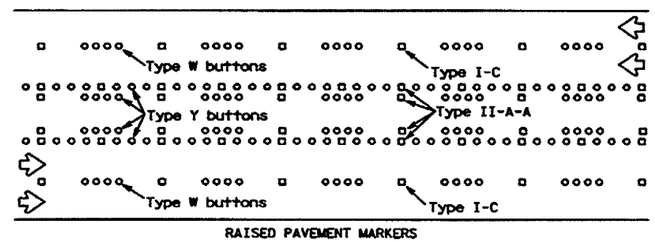
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE



REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.

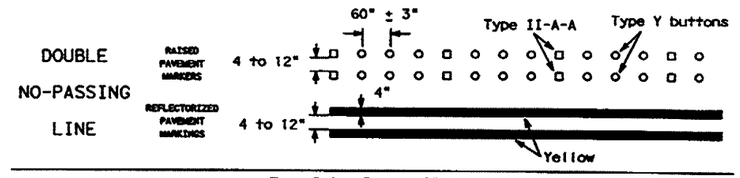


RAISED PAVEMENT MARKERS

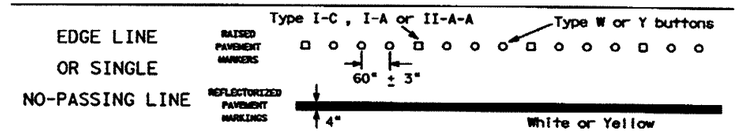
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

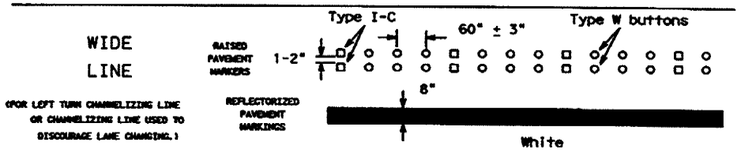


EDGE LINE OR SINGLE NO-PASSING LINE



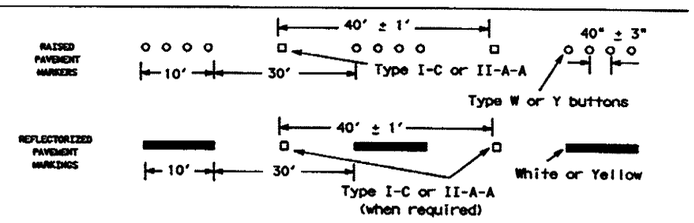
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)



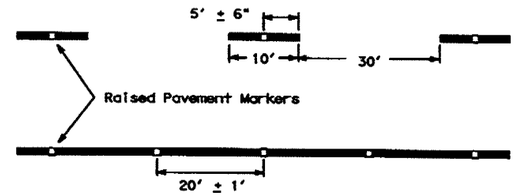
BROKEN LINE

(FOR CENTER LINE OR LANE LINE.)



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

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BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS STANDARD

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