

ENGINEERING CONSTRUCTION PLANS FOR

OSTEOMED CORPORATION

GRADING, PAVING AND DRAINAGE IMPROVEMENTS THE TOWN OF ADDISON, TEXAS

B19-2

OSTEOMED As-Built 11/02

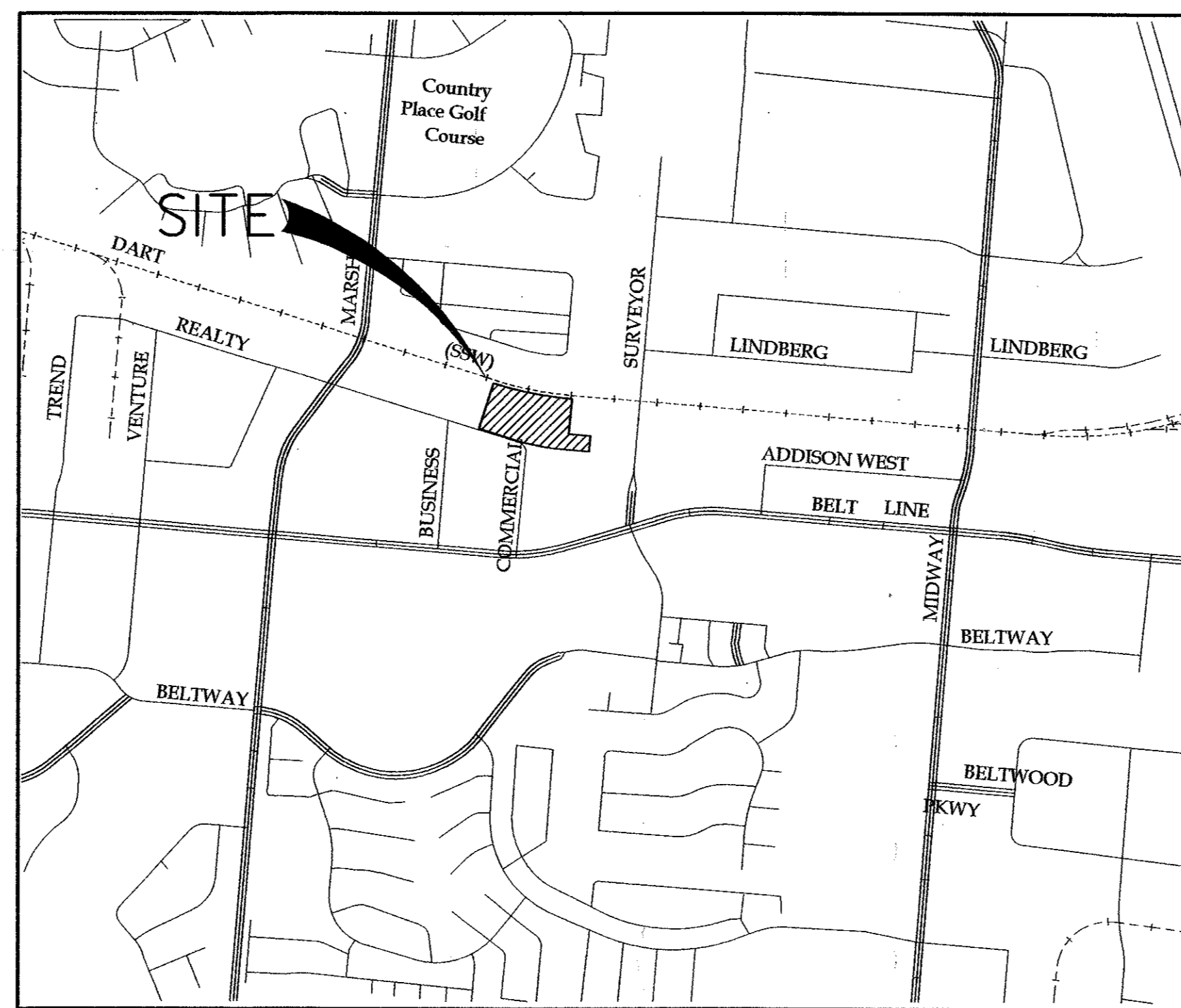
38835 ARAPAHO

OWNER

OSTEOMED CORPORATION
3750 REALTY ROAD
ADDISON, TX 75001

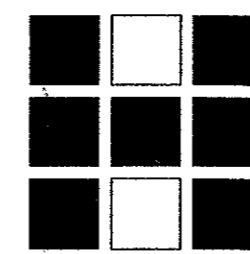
ENGINEER

HALFF ASSOCIATES, INC.
8616 NORTHWEST PLAZA DR.
DALLAS, TX. 75225
(214) 346-6200
CONTACT: DENNIS J. CHOVAN, P.E.



LOCATION MAP

NOT TO SCALE



Halff Associates

ENGINEERS . ARCHITECTS . SCIENTISTS . PLANNERS . SURVEYORS

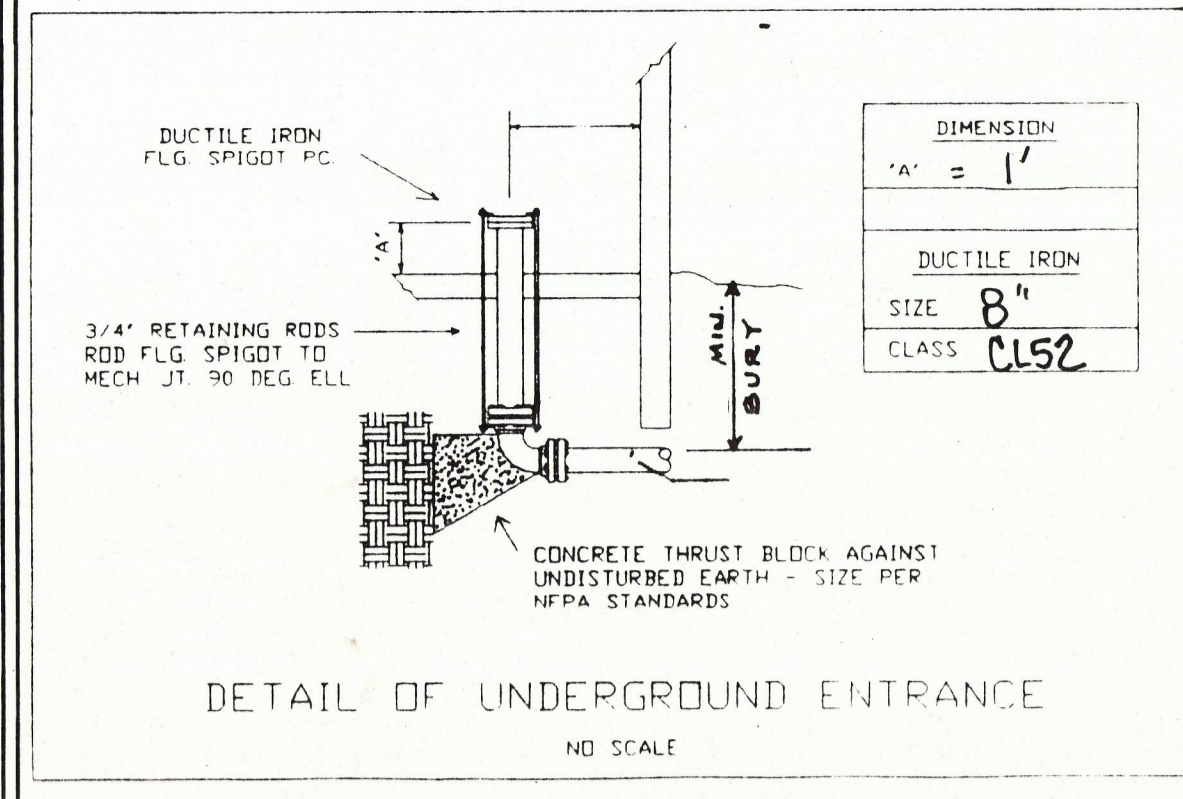
8616 NORTHWEST PLAZA DRIVE

SHEET INDEX

C0.0	COVER SHEET
C1.1	EROSION CONTROL PLAN
C1.2	EROSION CONTROL NOTES AND DETAILS
C1.3	EROSION CONTROL NOTES
C1.4	EROSION CONTROL NOTES
C3.1	DRAINAGE AREA MAP
C3.2	GRADING PLAN
C4.1	PAVING AND DIMENSIONAL CONTROL PLAN
C4.2	PAVING AND DIMENSIONAL CONTROL DETAILS
C5.1	STORM DRAINAGE CALCULATIONS
C5.2	STORM DRAINAGE PLAN
C5.3	STORM DRAINAGE PROFILES
C5.4	STORM DRAINAGE DETAILS
C6.1	WATER AND WASTEWATER PLAN
* L1.1	LANDSCAPE PLAN
* L1.2	LANDSCAPE SPECIFICATIONS
* L1.3	IRRIGATION SPECIFICATIONS

* PREPARED BY SMR
LANDSCAPE ARCHITECTURE

"AS-BUILT PLAN BASED ON CONTRACTOR'S RECORD DRAWINGS"

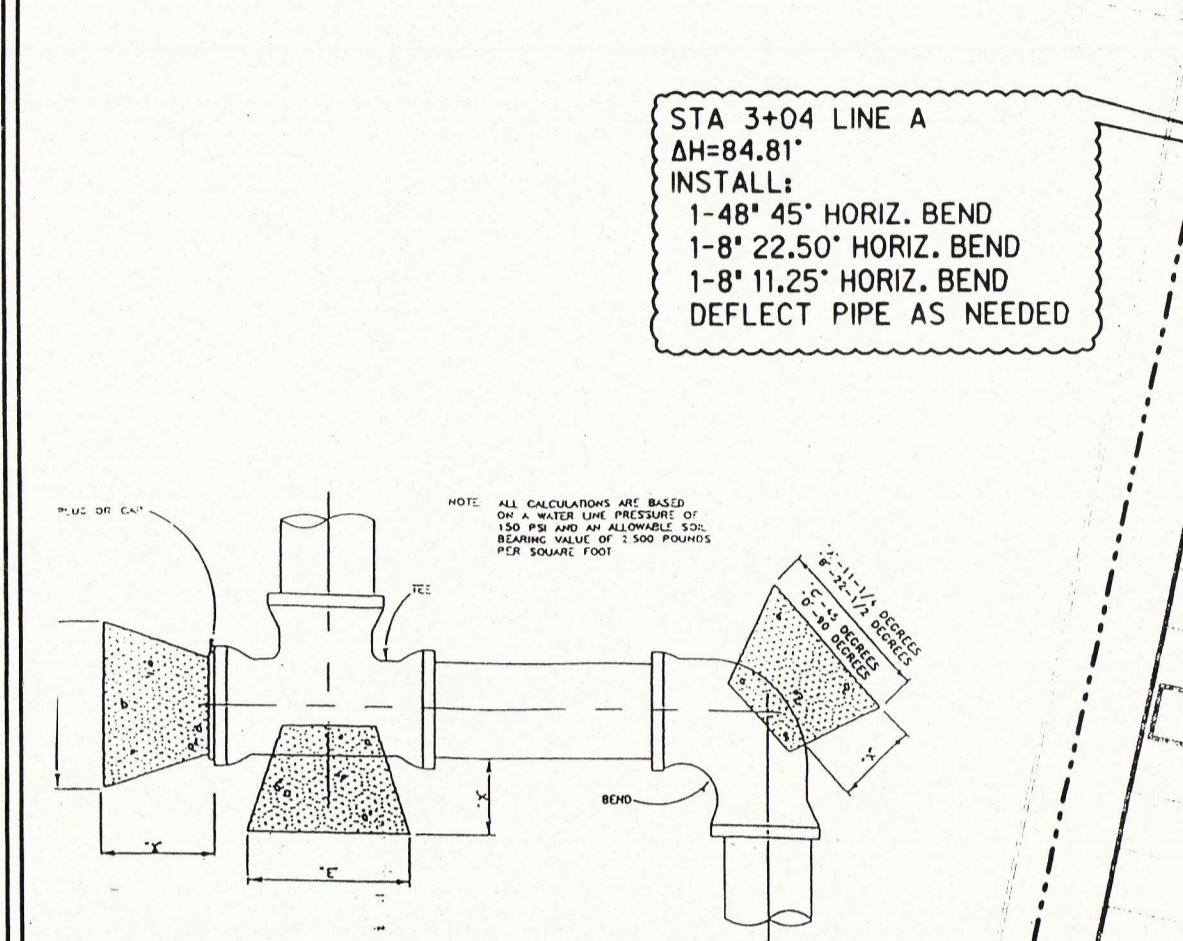
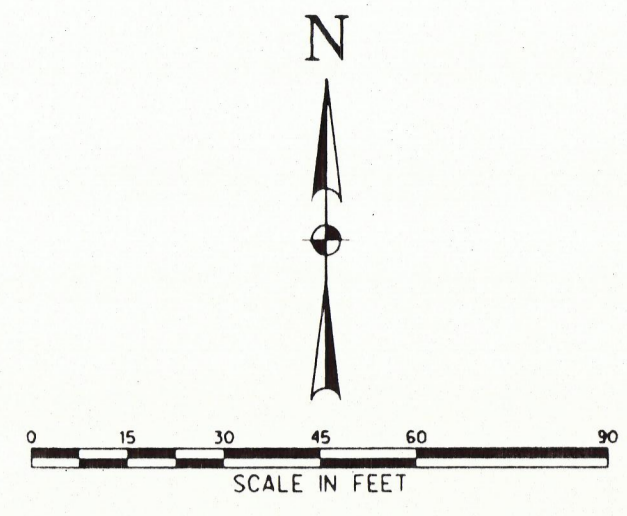


DIMENSION	
1\"/>	

SOUTHERN PACIFIC RAILROAD
(100' R.O.W.)

ENGINEERING STANDARDS FOR TRENCH WIDTHS		
INSIDE DIAMETER OF PIPE	TRENCH WIDTH	
	MIN	MAX
8	24	36

THE TRENCH TO PROVIDE A BEARING SURFACE ON UNDISTURBED SOIL AND CONCRETE IS POURED TO FIT AGAINST AS MUCH OF THE FITTING WITHOUT INTERFERING WITH ACCESS TO FITTING JOINTS



STA 3+04 LINE A
ΔH=84.81'
INSTALL:
1-48' 45' HORIZ. BEND
1-8' 22.50' HORIZ. BEND
1-8' 11.25' HORIZ. BEND
DEFLECT PIPE AS NEEDED

HORIZONTAL BLOCKING TABLE											
PIPE SIZE	2-1/2\"/>										

THE MINIMUM VERTICAL DIMENSION OF ALL BLOCKINGS SHALL BE 1.5 TIMES THE PIPE DIAMETER WITH AT LEAST 0.75 TIMES THE PIPE DIAMETER EXTENDING BOTH ABOVE AND BELOW THE PIPE CENTERLINE. THIS DIMENSION EXTENDS THE 1\"/>

FOR 22-1/2\", 45\", 80\"/>

ALL MINIMUM AREAS ARE IN SQUARE FEET.

CONTRACTOR TO COORDINATE CONNECTION TO PROPOSED ARAPAHO ROAD UTILITIES

REALLY ROAD (84' R.O.W.)

COMMERCIAL DRIVE (60' R.O.W.)

CAUTION: EX. 60\"/>

STA 4+67 LINE A
INSTALL:
1-8\"/>

STA 7+14 LINE A
ΔH=96.47
INSTALL:
2-8\"/>

STA 7+58 LINE A
INSTALL:
1-8\"/>

STA 8+06 LINE A
INSTALL:
1-8\"/>

STA 9+62 LINE A
INSTALL:
1-8\"/>

STA 12+31 LINE A
INSTALL:
1-8\"/>

STA 12+15 LINE A
ΔH=90.78'
INSTALL:
2-8\"/>

STA 12+68 LINE A
INSTALL:
1-1/2\"/>

STA 12+79 LINE A
END 8\"/>

STA 0+00 LINE A
BEGIN 8\"/>

INSTALL:
1-12\"/>

INSTALL:
1-2\"/>

STA 0+00 LINE WW-1
CONNECT TO EXIST. 6\"/>

INSTALL:
1-2\"/>

CONTRACTOR TO COORDINATE CONNECTION TO PROPOSED ARAPAHO ROAD UTILITIES WITH TOWN OF ADDISON

CONTRACTOR TO VERIFY STUBOUT LOCATION AND EXISTING FLOWLINE PRIOR TO CONSTRUCTION

PROPOSED 15' WATER EASEMENT BY SEPARATE INSTRUMENT

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

8\"/>

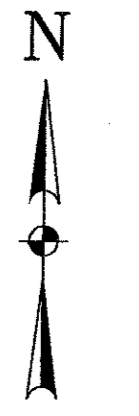
8\"/>

8\"/>

8\"/>

8

SOUTHERN PACIFIC RAILROAD
(100' R.O.W.)



0 15 30 45 60
SCALE IN FEET

LEGEND

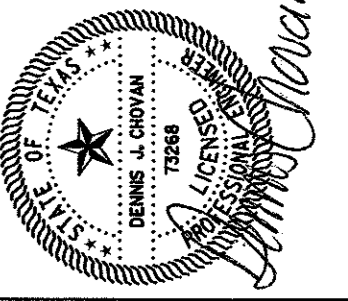
- 8" SS → EXIST. SANITARY SEWER
- 12" W → EXIST. WATER
- RCP → EXIST. STORM SEWER
- ⊗ → OVERHEAD ELECTRIC
- - - - - PROPOSED SANITARY SEWER
- 6" W → PROPOSED WATER
- 12" RCP → PROPOSED STORM SEWER
- - - - - PROPERTY LINE
- - - - - EASEMENT LINE
- SF — PROPOSED SILT FENCE
- PROPOSED INLET PROTECTION

BENCHMARKS:

- BM#1 - "I" CUT ON INLET SEE CORNER OF BELTLINE AND SURVEYOR
ELEV= 594.94
- BM#2 - "I" CUT ON W. TBC COMMERCIAL DR. @ 2ND FIRE HYDRANT NORTH OF BELTLINE RD.
ELEV= 586.94

OSTEOMED CORPORATION FACILITY
 ADDISON, TEXAS

THE SEAL AFFIXED TO THIS DRAWING HAS APPROVED BY SENATOR CHAVAN, P.E., 12388 W. 42ND ST., DALLAS, TEXAS 75244. THIS SEAL IS NOT VALID UNLESS IT IS AFFIXED TO THIS DRAWING AND IS NOT REPRODUCED OR COPIED. ANY REPRODUCTION OR COPIING OF THIS SEAL IS PROHIBITED.



Half Associates, Inc.
 ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS
 8616 NORTHWEST PLAZA DRIVE
 DALLAS, TEXAS 75225
 TEL (214) 346-6300
 FAX (214) 739-0055

Project No:	AVO # 20079	
Issued:	05/13/02	
Revisions:		
No.	Date	Description
1	05/13/02	INLET RELOCATION
2	8/20/2002	AS PER SITE CHANGES
Drawn by: DD Checked by: DJC Sheet Title: EROSION CONTROL PLAN C1.1		

CONSTRUCT SILT FENCE
SEE SHEET C1.2 FOR DETAIL

INSTALL DROP INLET PROTECTION
SEE SHEET C1.2 FOR DETAIL

INSTALL DROP INLET PROTECTION
SEE SHEET C1.2 FOR DETAIL

BELT LINE - MARSH BUSINESS PARK
LOT 4F, BLOCK 1
VOL. 95100, PG. 3275
D.R.D.C.T.

INSTALL CURB INLET PROTECTION
SEE SHEET C1.2 FOR DETAIL

INSTALL DROP INLET PROTECTION
SEE SHEET C1.2 FOR DETAIL

PROPOSED 30' X 30'
CONSTRUCTION ENTRANCE
SEE SHEET C1.2 FOR DETAIL

CONSTRUCT SILT FENCE
SEE SHEET C1.2 FOR DETAIL

BELT LINE - MARSH BUSINESS PARK
LOT 1, BLOCK 1
VOL. 83042, PG. 425
D.R.D.C.T.

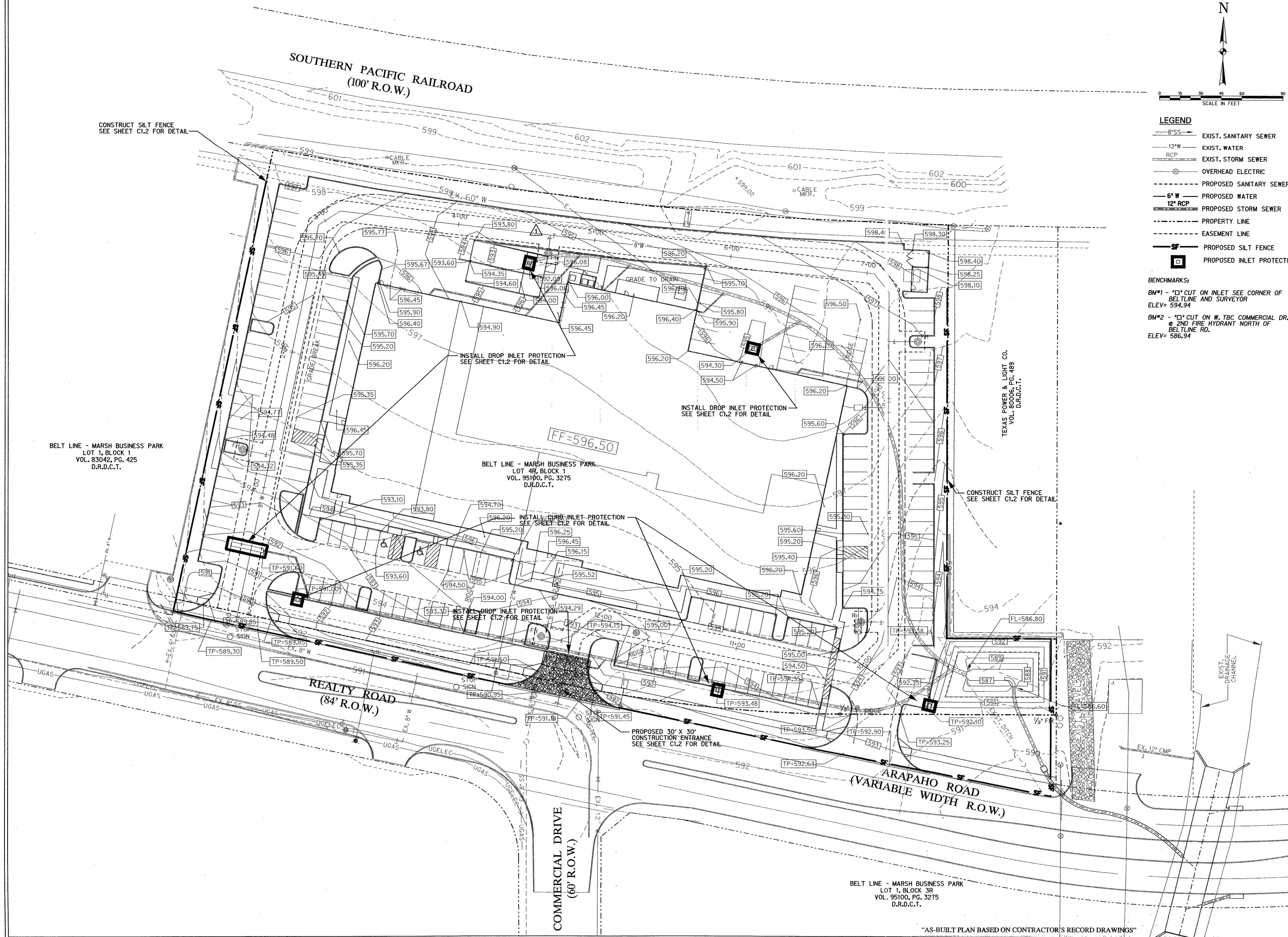
REALTY ROAD
(84' R.O.W.)

ARAPAHO ROAD
(VARIABLE WIDTH R.O.W.)

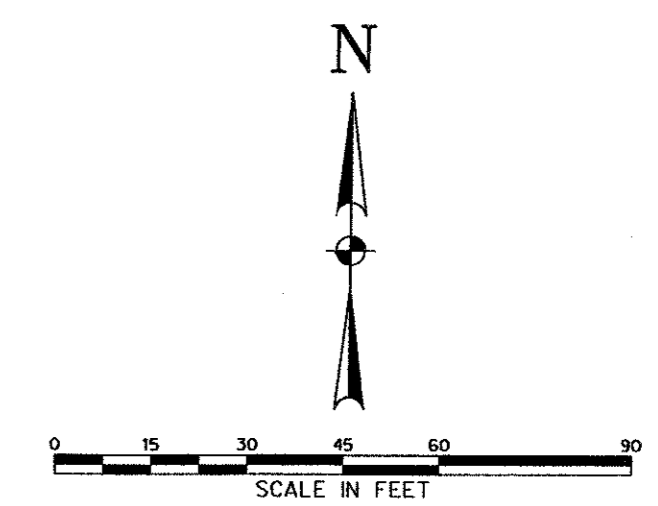
COMMERCIAL DRIVE
(60' R.O.W.)

BELT LINE - MARSH BUSINESS PARK
LOT 1, BLOCK 3R
VOL. 95100, PG. 3275
D.R.D.C.T.

"AS-BUILT PLAN BASED ON CONTRACTOR'S RECORD DRAWINGS"

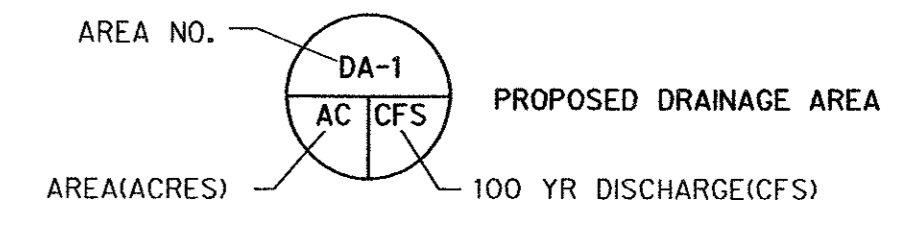


SOUTHERN PACIFIC RAILROAD
(100' R.O.W.)



LEGEND

- 8" SS EXIST. SANITARY SEWER
- 12" W EXIST. WATER
- RCP EXIST. STORM SEWER
- OVERHEAD ELECTRIC
- PROPOSED SANITARY SEWER
- 6" W PROPOSED WATER
- 12" RCP PROPOSED STORM SEWER
- PROPERTY LINE
- EASEMENT LINE
- PROPOSED DRAINAGE DIVIDE

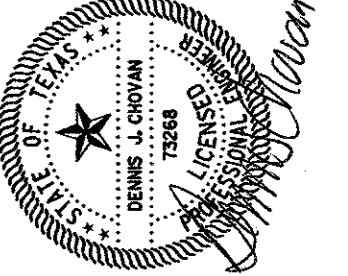


$Q_{100} = C \cdot I \cdot A$
 Q_{100} (100 YR DISCHARGE) = CFS
 C = (RUNOFF COEFFICIENT) = 0.9
 I = (RAINFALL INTENSITY) = 8.74 IN/HR
 A = (AREA) = ACRES
 T_c = (TIME OF CONCENTRATION) = 10 MIN.

BELT LINE - MARSH BUSINESS PARK
LOT 1, BLOCK 1
VOL. 83042, PG. 425
D.R.D.C.T.

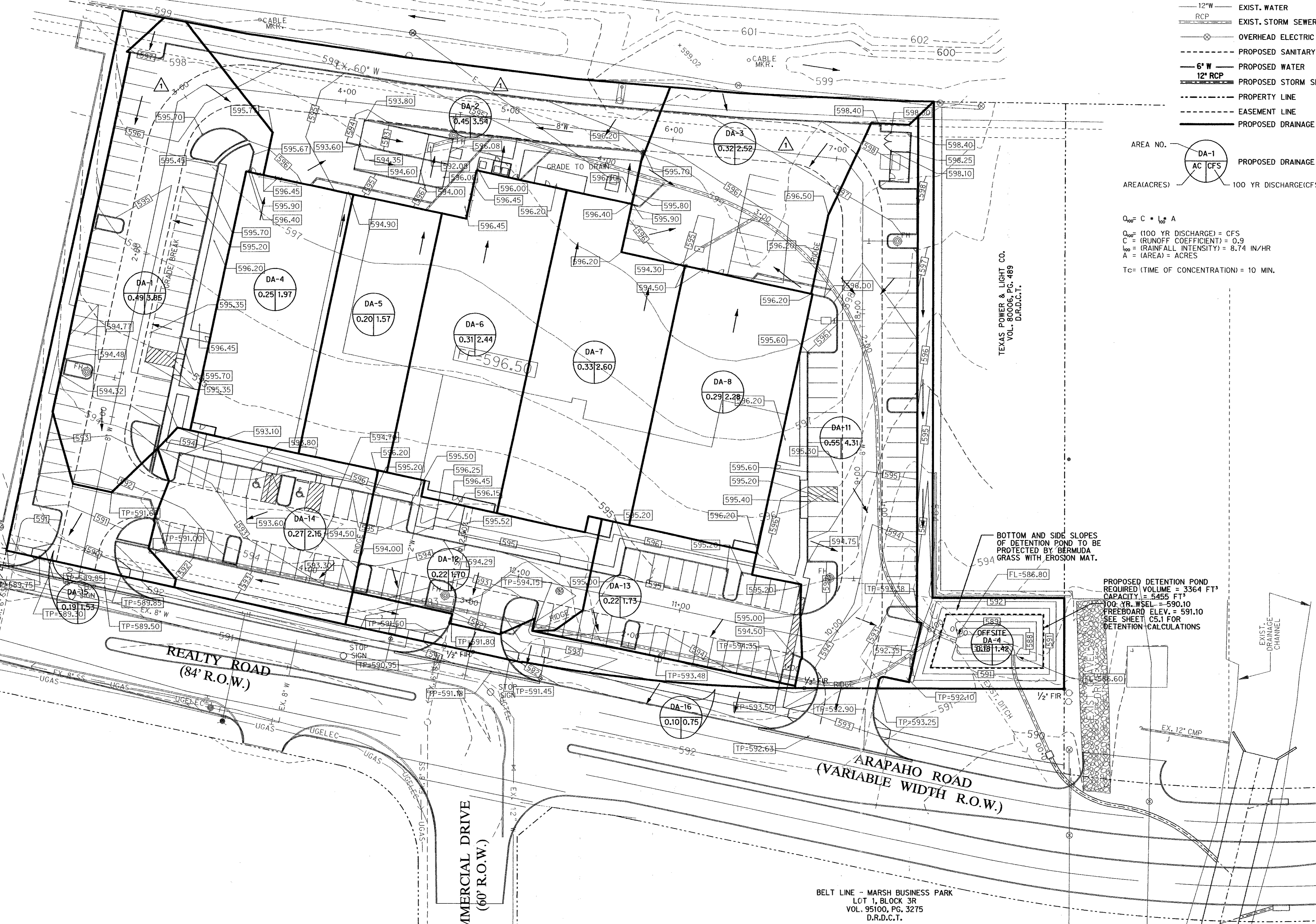
TEXAS POWER & LIGHT CO.
VOL. 80006, PG. 489
D.R.D.C.T.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DENNIS J. CHOWAN, P.E., LICENSE NO. 05-21-02. PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT. THIS DOCUMENT IS THE PROPERTY OF HALFF ASSOCIATES, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF HALFF ASSOCIATES, INC. 8015 NORTHWEST PLAZA DRIVE, DALLAS, TEXAS 75225



Half Associates, Inc.
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS
8015 NORTHWEST PLAZA DRIVE
DALLAS, TEXAS 75225
TEL (214) 346-6200
FAX (214) 739-0065

Project No: AVO # 20079	
Issued: 08/13/02	
Revisions:	
No.	Description
1	06/30/02 GRADE CHANGE AT NORTH SIDE OF BLDG.
2	6/20/2002 AS PER SITE CHANGES
Drawn by: DD	
Checked by: DJC	
Sheet Title: DRAINAGE AREA MAP	
Sheet Number: C3.1	

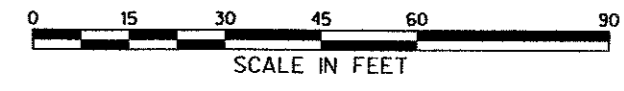


BOTTOM AND SIDE SLOPES OF DETENTION POND TO BE PROTECTED BY BERMUDA GRASS WITH EROSION MAT.

PROPOSED DETENTION POND
REQUIRED VOLUME = 3364 FT³
CAPACITY = 5455 FT³
100 YR. WSEL = 590.10
FREEBOARD ELEV. = 591.10
SEE SHEET C5.1 FOR
DETENTION CALCULATIONS

BELT LINE - MARSH BUSINESS PARK
LOT 1, BLOCK 3R
VOL. 95100, PG. 3275
D.R.D.C.T.

"AS-BUILT PLAN BASED ON CONTRACTOR'S RECORD DRAWINGS"



LEGEND

- 8" SS → EXIST. SANITARY SEWER
- 12" W → EXIST. WATER
- RCP → EXIST. STORM SEWER
- ⊗ → OVERHEAD ELECTRIC
- - - - - PROPOSED SANITARY SEWER
- 6" W → PROPOSED WATER
- 12" RCP → PROPOSED STORM SEWER
- - - - - PROPERTY LINE
- - - - - EASEMENT LINE

BENCHMARKS:

- BM#1 - "X" CUT ON INLET SEE CORNER OF BELTLINE AND SURVEYOR
ELEV= 594.94
- BM#2 - "X" CUT ON W. TBC COMMERCIAL DR. @ 2ND FIRE HYDRANT NORTH OF BELTLINE RD.
ELEV= 586.94

CONSTRUCT LANDSCAPE WALL SEE DETAIL THIS SHEET
TW= 598.50
BW= 597.50

CAUTION: EX. 60" WATER LINE

BELT LINE - MARSH BUSINESS PARK
LOT 1, BLOCK 1
VOL. 83042, PG. 425
D.R.D.C.T.

TEXAS POWER & LIGHT CO.
VOL. 80006, PG. 489
D.R.D.C.T.

4:1 MAX. SLOPE WHERE CONC. PAVEMENT GOES FROM 594.50 TO 596.00 @ 2' HIGH DOCK DOOR

NOTE: MAXIMUM 2% SLOPE IN ALL HANDICAPPED PARKING AREAS.

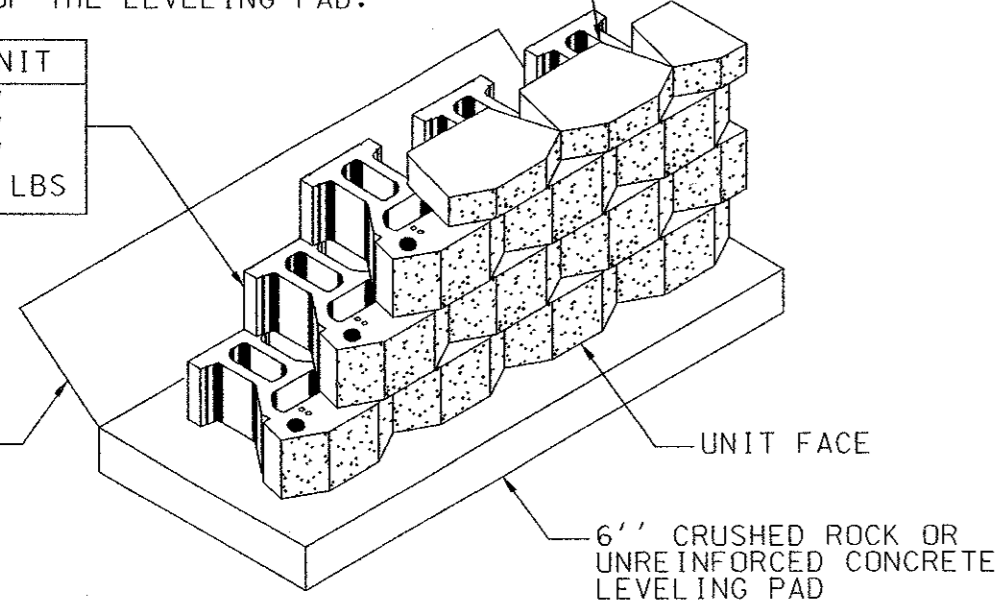
NOTE: MAXIMUM 2% SLOPE IN ALL HANDICAPPED PARKING AREAS.

BASE LEVELING PAD NOTES:

1. THE LEVELING PAD IS TO BE CONSTRUCTED OF CRUSHED STONE OR 2,000 PSI± UNREINFORCED CONCRETE.
2. THE BASE FOUNDATION IS TO BE APPROVED BY THE DESIGN ENGINEER PRIOR TO PLACEMENT OF THE LEVELING PAD.

STANDARD UNIT
WIDTH: 18"
DEPTH: 21"
HEIGHT: 8"
WEIGHT: 115 LBS

MINI CAP UNIT
WIDTH: 18"
DEPTH: 10"
HEIGHT: 4"
WEIGHT: 45 LBS



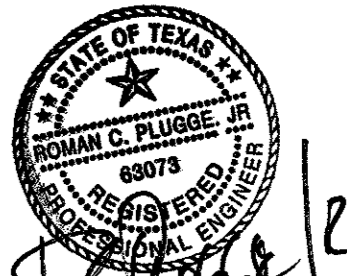
LANDSCAPE WALL DETAIL

CONTRACTOR TO COORDINATE DRIVEWAY ELEVATIONS WITH PROPOSED ARAPAHO ROAD GRADES

CONTRACTOR TO COORDINATE DRIVEWAY ELEVATIONS WITH PROPOSED ARAPAHO ROAD GRADES

BELT LINE - MARSH BUSINESS PARK
LOT 1, BLOCK 3R
VOL. 95100, PG. 3275
D.R.D.C.T.

"AS-BUILT PLAN BASED ON CONTRACTOR'S RECORD DRAWINGS"



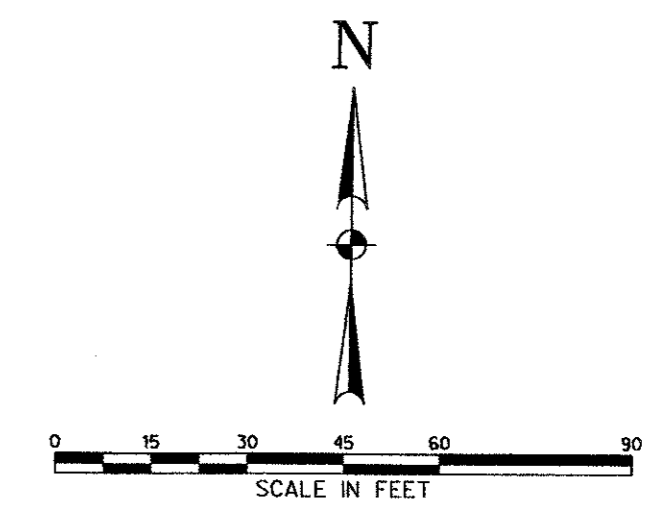
Handwritten signature and date: Roman C. Plouffe, 2/14/02

OSTEOMED CORPORATION FACILITY
ADDISON, TEXAS

Half Associates, Inc.
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS
8616 NORTHWEST PLAZA DRIVE
DALLAS, TEXAS 75225
TEL (214) 346-6000
FAX (214) 759-0005

Project No: AVO # 20079	
Issued: 05/18/02	
Revisions:	
No.	Description
1	06/14/02 GRADE CHANGES AT NORTH SIDE OF BLDG.
2	5/20/2002 AS PER SITE CHANGES
3	5/29/2002 MOVE P.C. PARKING @ MAIN ENTRANCE OF BLDG.
Drawn by: DD	
Checked by: DJC	
Sheet Title	
GRADING PLAN	
C3.2	
Sheet Number	

SOUTHERN PACIFIC RAILROAD
(100' R.O.W.)



- LEGEND**
- 8"SS EXIST. SANITARY SEWER
 - 12"W EXIST. WATER
 - RCP EXIST. STORM SEWER
 - OVERHEAD ELECTRIC
 - PROPOSED SANITARY SEWER
 - 6" W PROPOSED WATER
 - 12" RCP PROPOSED STORM SEWER
 - PROPERTY LINE
 - EASEMENT LINE

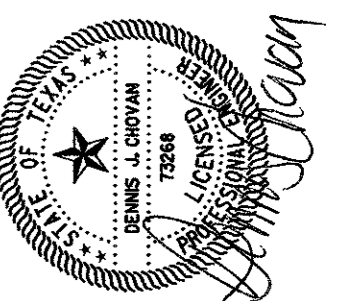
BENCHMARKS:

BM#1 - "X" CUT ON INLET SEE CORNER OF BELTLINE AND SURVEYOR
ELEV= 594.94

BM#2 - "X" CUT ON W. TBC COMMERCIAL DR. @ 2ND FIRE HYDRANT NORTH OF BELTLINE RD.
ELEV= 586.94

OSTEOMED CORPORATION FACILITY
ADDISON, TEXAS

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DENNIS J. CHAVAN, P.E., LICENSE NO. 05-21-02. PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OBLIGATION UNDER THE TEXAS ENGINEERING PRACTICE ACT. AT THE OFFICES OF HALFF ASSOCIATES, INC., 8616 NORTHWEST PLAZA DRIVE, DALLAS, TEXAS 75225.

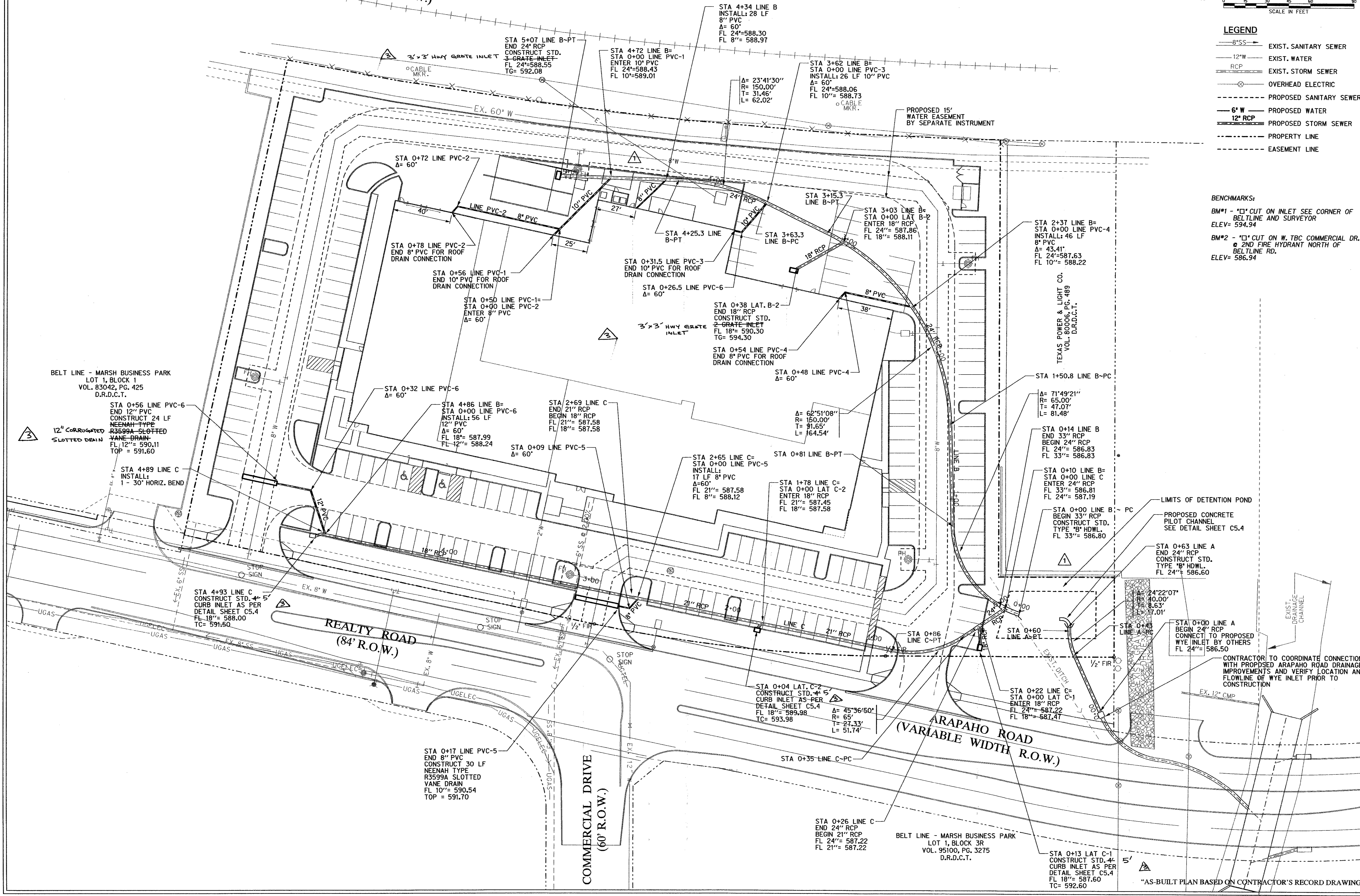


Halff Associates, Inc.
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS
8616 NORTHWEST PLAZA DRIVE
DALLAS, TEXAS 75225
TEL (214) 346-5000
FAX (214) 759-0995

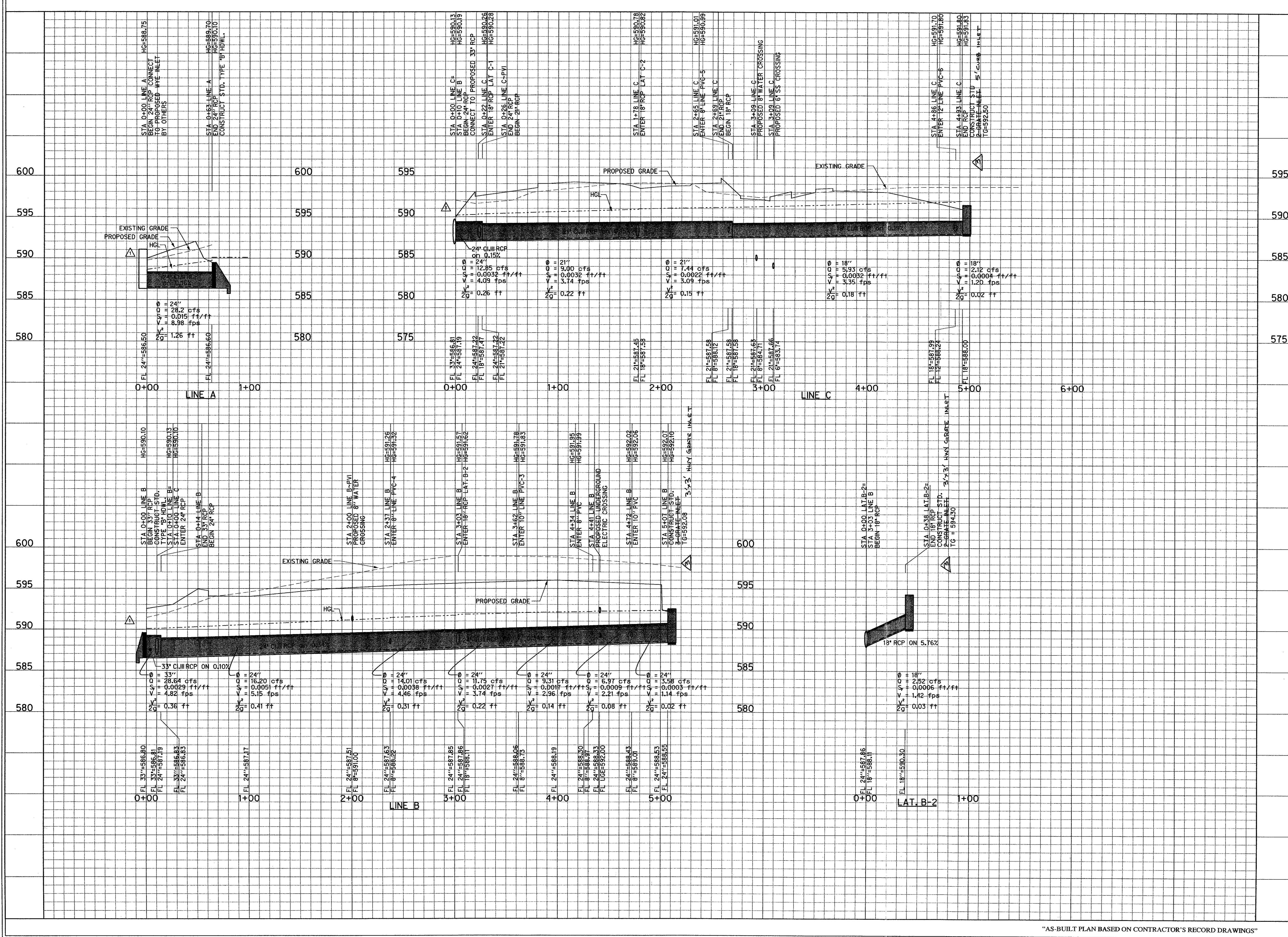
Project No: AVO # 20079
Revised: 05/19/02

No.	Date	Description
1	09/19/02	INLET RELOCATION
2	6/20/2002	AS PER SITE CHANGES
3	11/10/02	"AS-BUILT" CHANGES

Drawn by: DD
Checked by: DAC
Sheet Title: **STORM DRAINAGE PLAN**
C5.2
Sheet Number

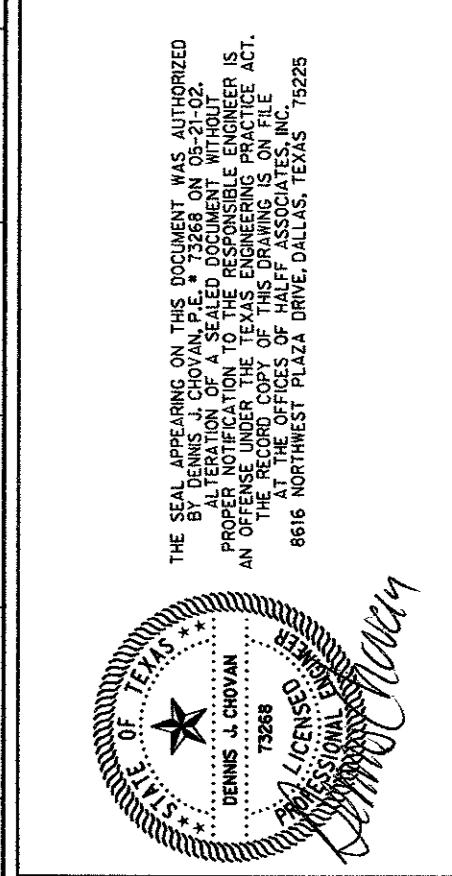


"AS-BUILT PLAN BASED ON CONTRACTOR'S RECORD DRAWINGS"



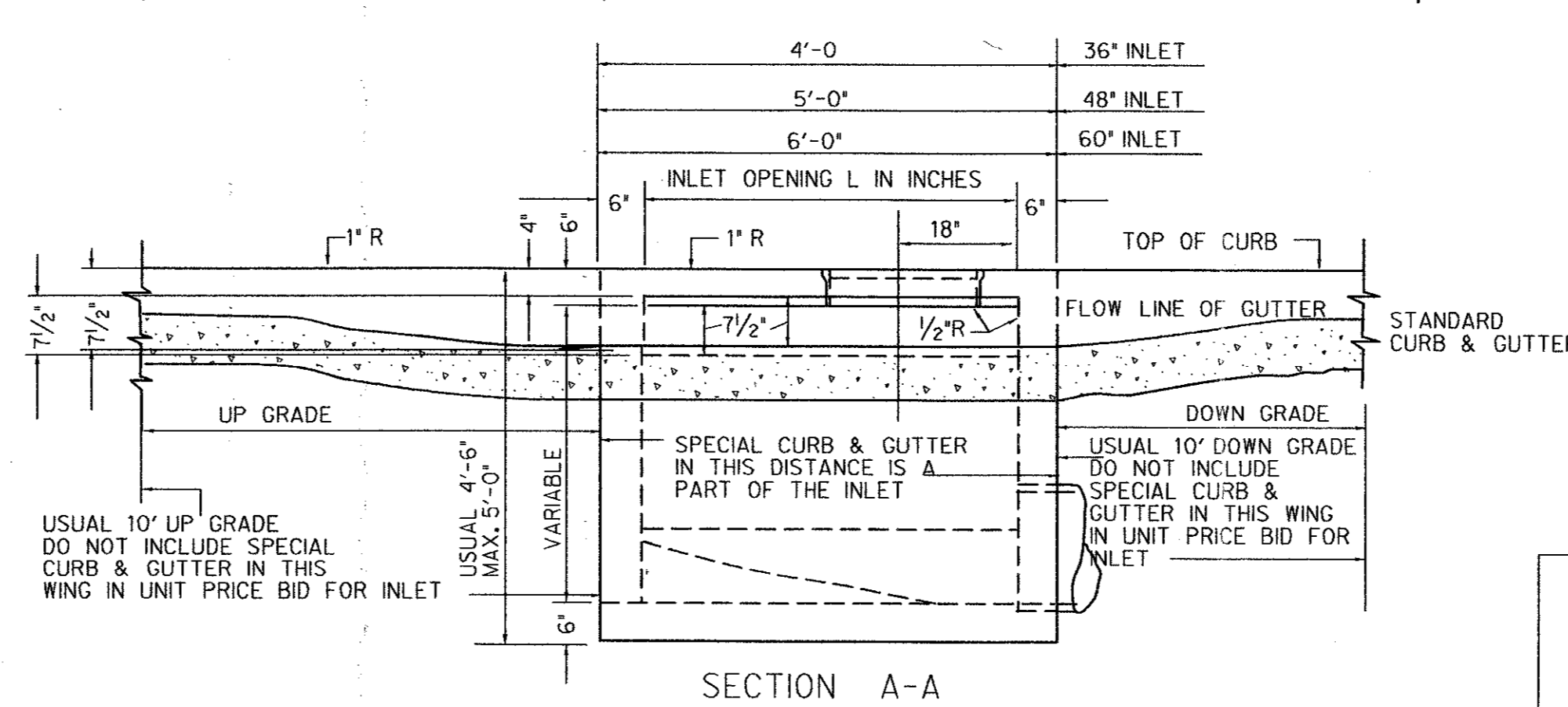
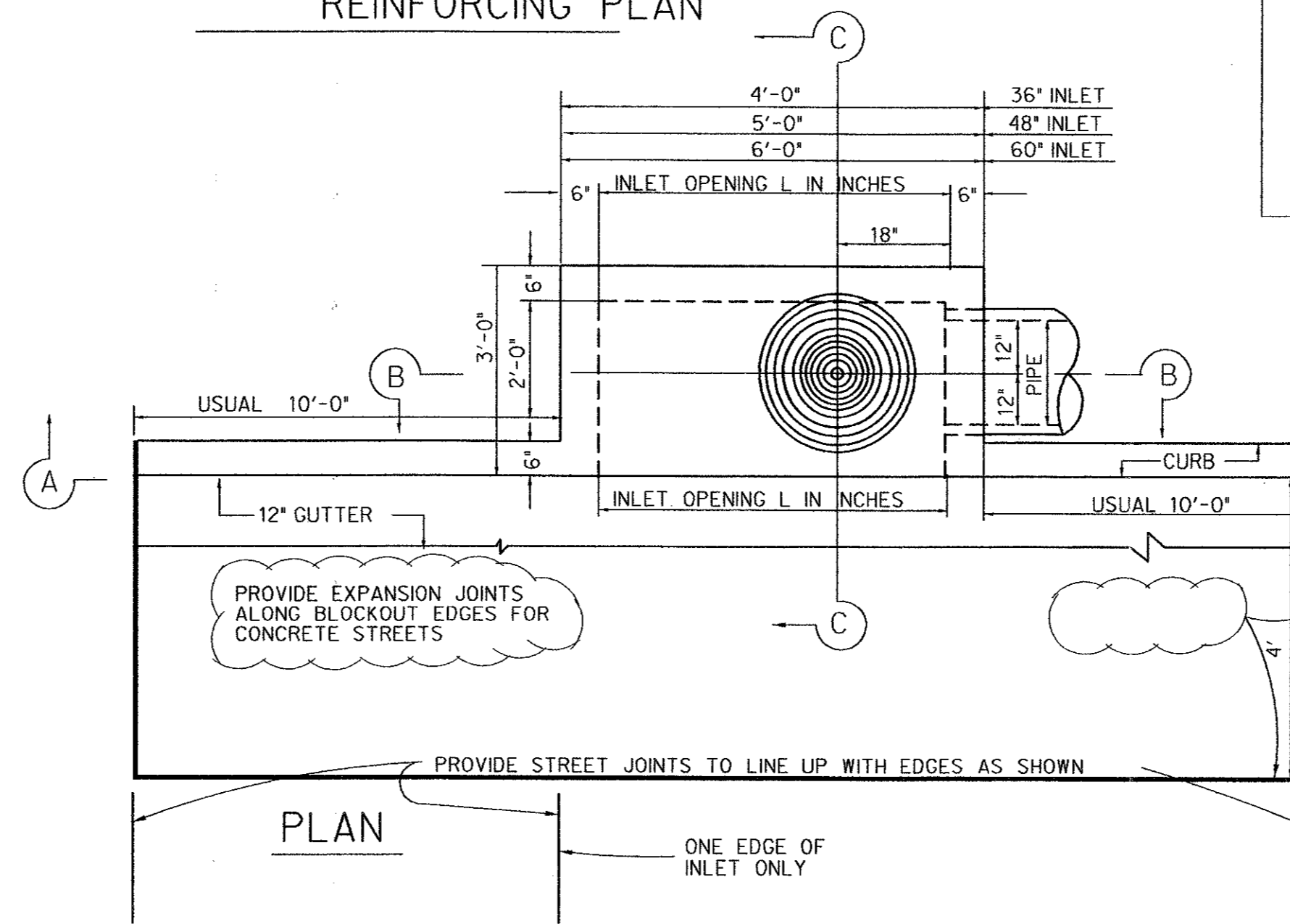
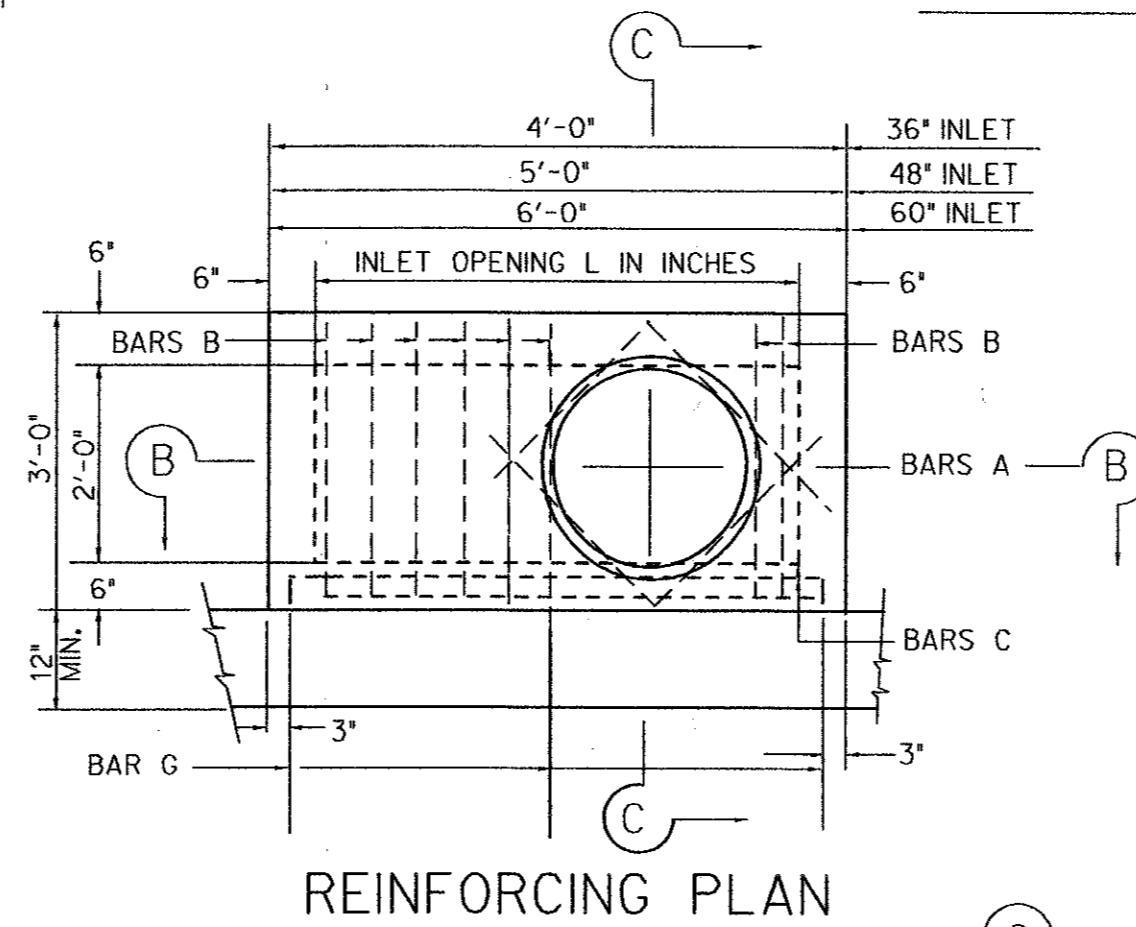
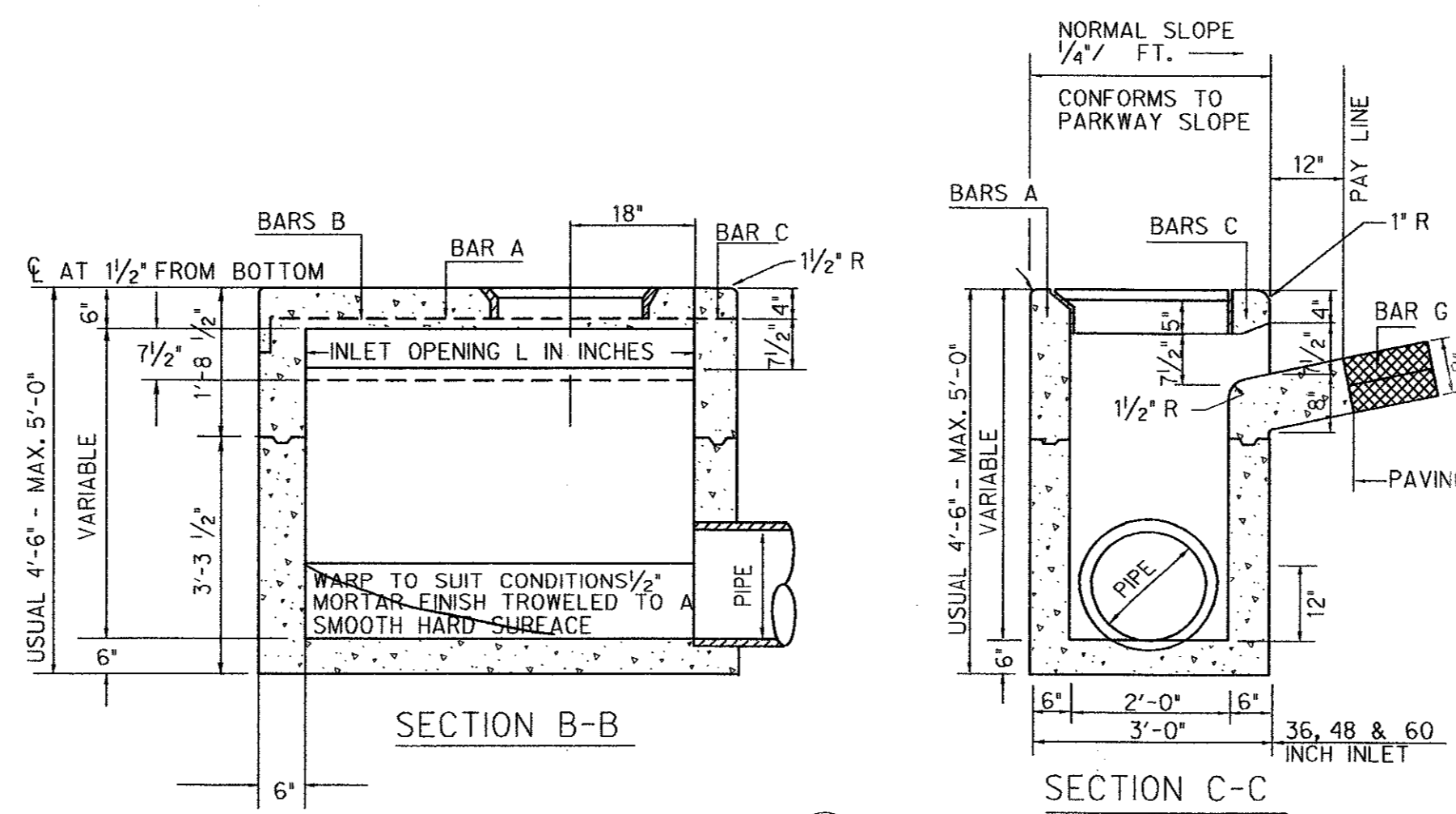
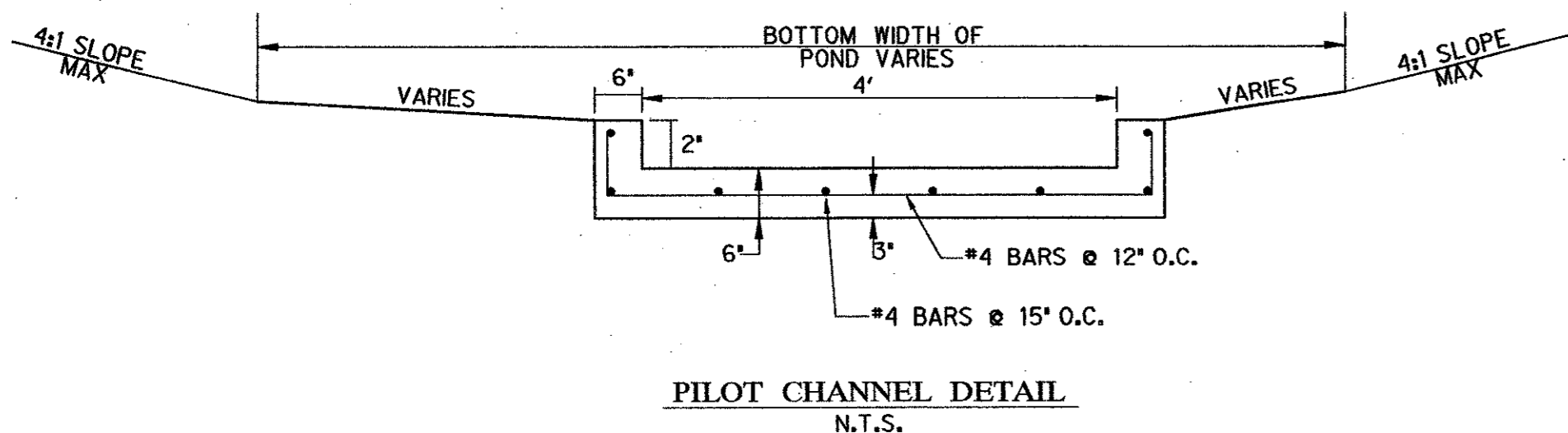
"AS-BUILT PLAN BASED ON CONTRACTOR'S RECORD DRAWINGS"

OSTEOMED CORPORATION FACILITY
ADDISON, TEXAS

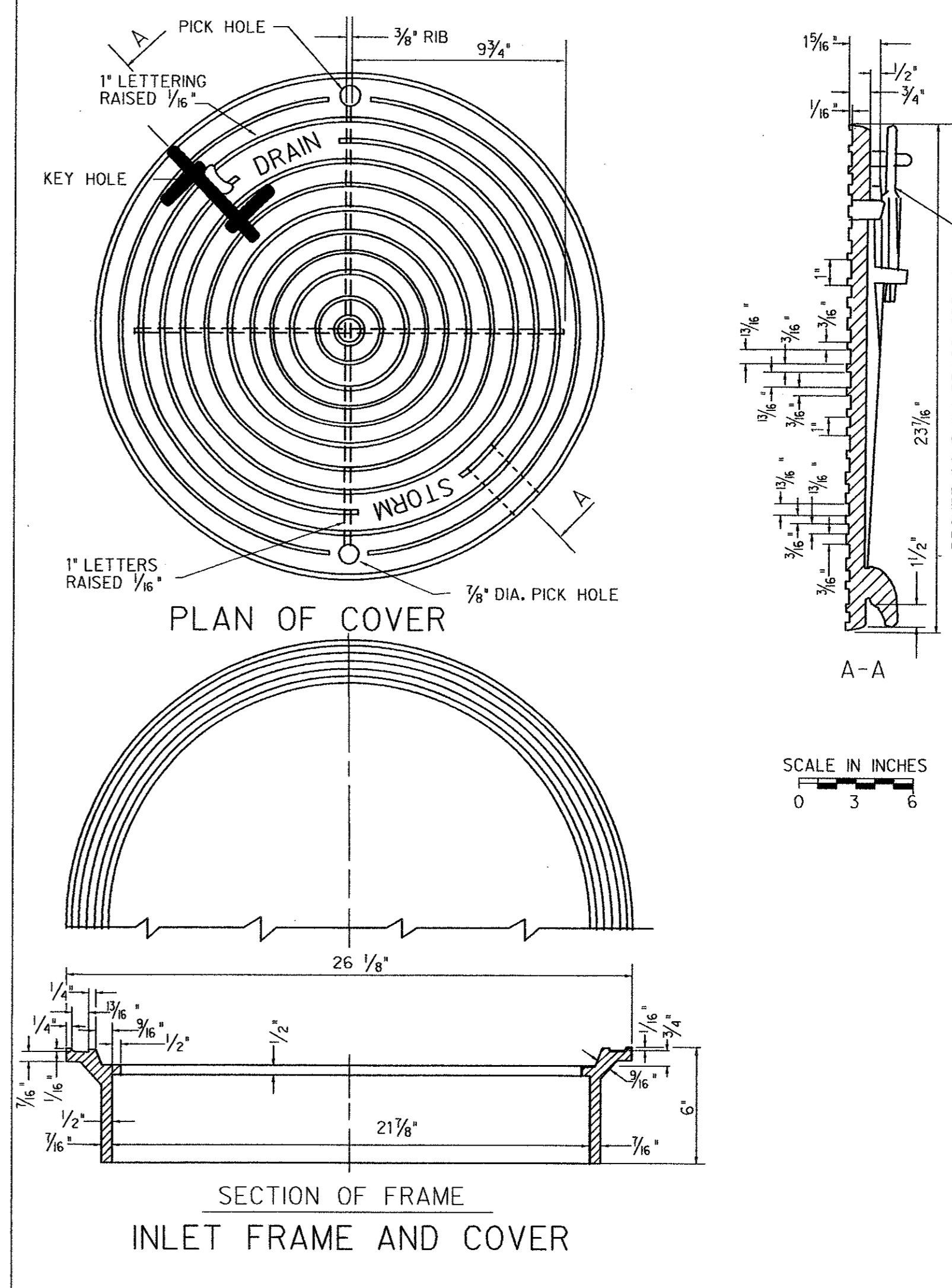


Half Associates, Inc.
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS
8616 NORTHWEST PLAZA DRIVE
DALLAS, TEXAS 75225
FAX (214) 739-0095

Project No:	AVO # 20079	
Issued:	05-15-02	
Revisions:		
No.	Date	Description
1	09/30/02	INLET RELOCATION
2	8/20/2002	AS PER SITE CHANGES
3	11/19/02	"AS BUILT" CHANGES
Drawn by:	DD	
Checked by:	DJC	
Sheet Title:	STORM DRAINAGE PROFILES	
Sheet Number:	C5.3	



CURB INLET DETAILS
36, 48 AND 60 INCH INLETS
N.T.S.



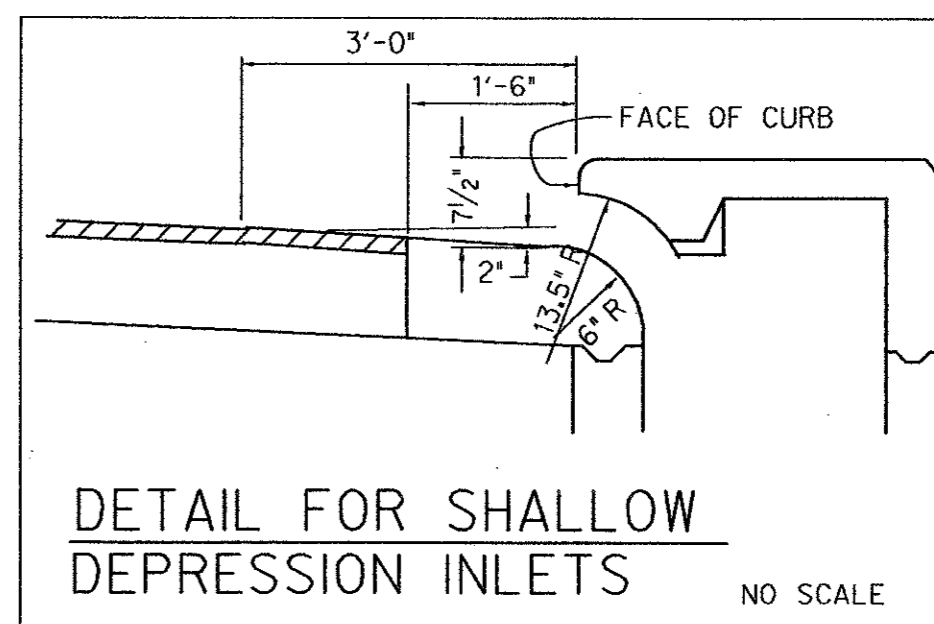
2'-6"	36" INLET - 4 REOD.
2'-6"	48" INLET - 4 REOD.
2'-6"	60" INLET - 4 REOD.

2'-9"	36" INLET - 4 REOD.
2'-9"	48" INLET - 6 REOD.
2'-9"	60" INLET - 8 REOD.

3'-9"	36" INLET - 2 REOD. 4'-9" LONG
4'-9"	48" INLET - 2 REOD. 5'-9" LONG
5'-9"	60" INLET - 2 REOD. 6'-9" LONG

3'-0"	36", 48" & 60"
	3/8" O.C. 3 REOD.

REINFORCING STEEL DETAILS NOT TO SCALE



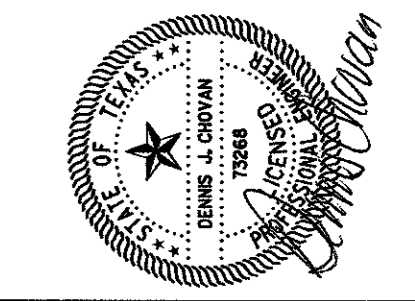
NOTES APPLICABLE TO ALL INLETS:

- LATERAL PIPE MAY ENTER INLET AT ANY LOCATION. REINFORCEMENT, STRUCTURAL STEEL AND CASTINGS SHALL CONFORM TO THE SPECIFICATIONS.
- TOP OF INLET SLOPE SHALL CONFORM TO ADJACENT PARKWAY NORMAL 1/4" FT. SLOPE.
- CONCRETE FOR INLET TOPS SHALL BE CLASS HAND FINISH CONCRETE (4500 PSI) WHEN USED IN STREETS AND ALLEYS.
- ALTERNATE CONSTRUCTION. ALTERNATE PRECAST INLETS MAY BE APPROVED ON AN INDIVIDUAL BASIS PRECAST INLETS SHALL BE OF EQUAL OR BETTER STRENGTH MATERIAL, AND WORKMANSHIP AND SHALL MEET THE STANDARD DESIGN CRITERIA OF THE CAST-IN-PLACE INLETS SHOWN IN THESE DETAILS.
- THE INLET FRAME & COVER SHALL BE AT THE SAME END OF INLET AS PIPE LATERAL.
- PROVIDE SHEET JOINTS IN INTEGRAL CONCRETE STREET PAVEMENT AS SHOWN.

AS-BUILT PLAN BASED ON CONTRACTOR'S RECORD DRAWINGS

OSTEOMED CORPORATION FACILITY
ADDISON, TEXAS

THE SEAL APPEARING ON THIS DOCUMENT HAS AUTHORIZED BY BOARD OF ARCHITECTS AND ENGINEERS OF THE STATE OF TEXAS. THIS DOCUMENT IS NOT VALID FOR ANY OTHER PROJECTS OR LOCATIONS WITHOUT THE WRITTEN CONSENT OF HALFF ASSOCIATES, INC. AT THE OFFICE OF HALFF ASSOCIATES, INC. 800 NORTHWEST PLAZA DRIVE, DALLAS, TEXAS 75225



Halff Associates, Inc.
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS
8616 NORTHWEST PLAZA DRIVE
DALLAS, TEXAS 75225
TEL (214) 346-6200
FAX (214) 739-0095

Project No. AVO # 20079
Issued: 06/19/02
Checked by: DJC
Sheet Title: **STORM DRAINAGE DETAILS**
Sheet Number: **C5.4**



LANDSCAPE TABULATIONS

SITE REQUIREMENTS
Requirements: 20% of gross site to be landscape
Total Site: 196,914.52 s.f.
Required: 39,382.90 s.f. (20%) Provided: 46,916 s.f. (23.8%)

STREET FRONTAGE
Requirements: 20' buffer along street frontage
(1) tree 4" cal. per 20 l.f., (8) shrubs per 20 l.f.

Realty Road/Arapaho Road: 750.71 l.f.
Required: (32) trees, 4" cal. (32) trees, 4" cal.
(264) shrubs, 5 gal. (469) shrubs, 5 gal.

PARKING LOT SCREEN
Requirements: 20' ht., 3' o.c., double staggered row
Provided

PERIMETER LANDSCAPE
Requirements: 5' wide buffer, (1) 4" cal. tree and (8) shrubs per 35 l.f.

West Property Line: 334 l.f.
Required: (10) trees, 4" cal. (10) trees, 4" cal.
(80) shrubs, 5 gal. (97) shrubs, 5 gal.

East Property Line: 405.99 l.f.
Required: (12) trees, 4" cal. (14) trees, 4" cal.
(96) shrubs, 5 gal. (145) shrubs, 5 gal.

North Property Line: 496.05 l.f.
Required: (14) trees, 4" cal. (14) trees, 4" cal.
(112) shrubs, 5 gal. (156) shrubs, 5 gal.

PARKING LOT - INTERIOR LANDSCAPE
Requirement: 10% of the parking area must be landscape
Parking lot: 80,438.8 s.f.
Required: 8,043.88 s.f. (10%) Provided: 11,496 s.f. (14.3%)

PARKING LOT
Requirement: (1) tree per 10 regular spaces
Total Parking 169 spaces
Required: (17) trees Provided: (23) trees, 4" cal.
(16) ornamental trees

GENERAL LAWN NOTES

1. Fine grade areas to achieve final contours indicated.
2. Adjust contours to achieve positive drainage away from buildings. Provide uniform rounding at top and bottom of slopes and other breaks in grade. Correct irregularities and areas where water may stand.
3. All lawn areas to receive solid sod shall be left in a maximum of 1" below final finish grade. Contractor to coordinate operations with on-site Construction Manager.
4. Contractor shall provide (2") two inches of imported topsoil on all areas to receive lawn.
5. Imported topsoil shall be natural, friable soil from the region, known as bottom land soil, free from lumps, clay, toxic substances, roots, debris, vegetation, stones, containing no salt and black to brown in color.
6. All lawn areas to be fine graded, irrigation trenches completely settled, and finish grade approved by the Architect prior to installation.

SOLID SOD NOTES

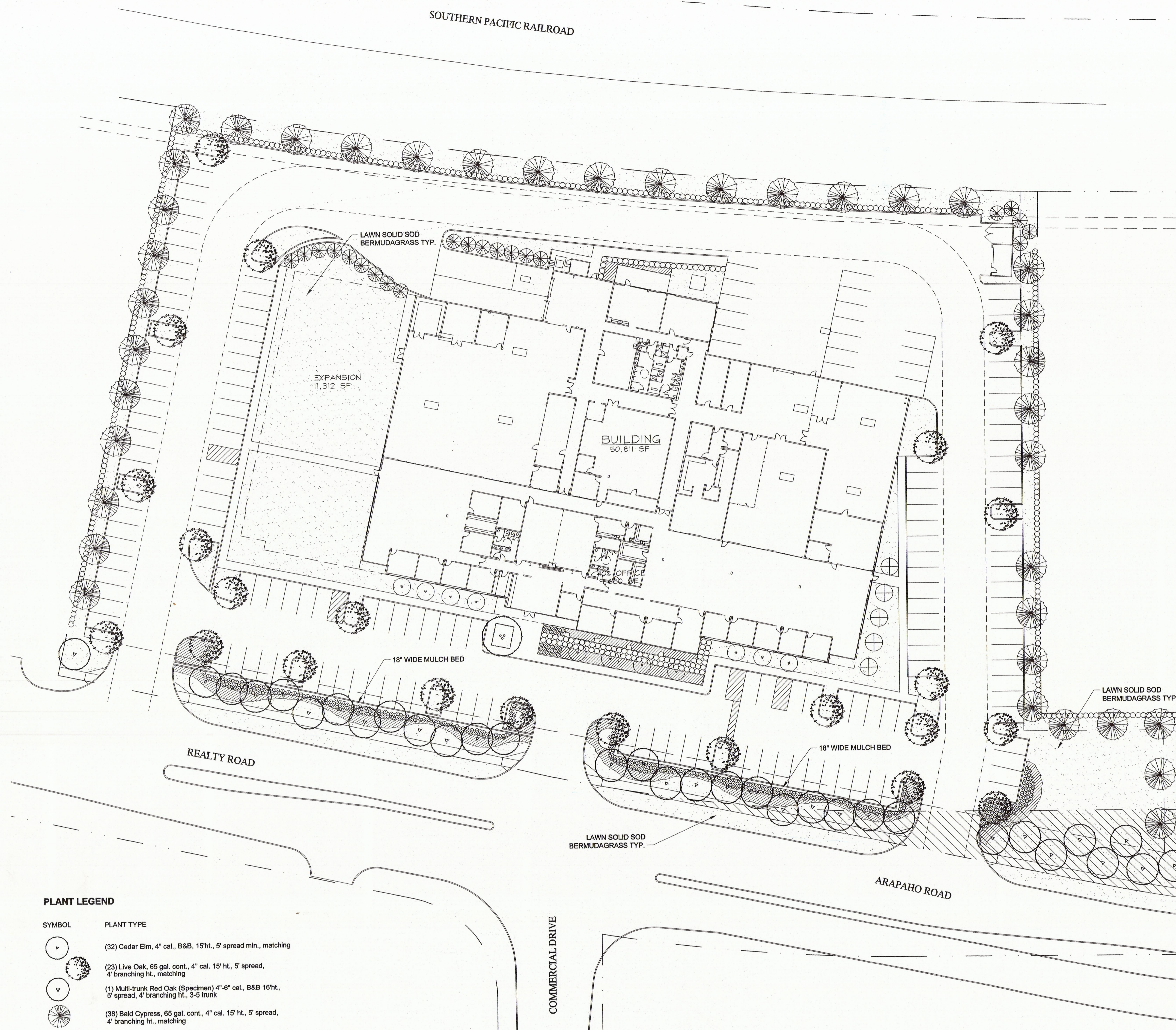
1. Fine grade areas to achieve final contours indicated. Leave areas to receive topsoil 3" below final desired grade in planting areas and 1" below final grade in turf areas.
2. Adjust contours to achieve positive drainage away from buildings. Provide uniform rounding at top and bottom of slopes and other breaks in grade. Correct irregularities and areas where water may stand.
3. All lawn areas to receive solid sod shall be left in a maximum of 1" below final finish grade. Contractor to coordinate operations with on-site Construction Manager.
4. Contractor to coordinate with on-site Construction Manager for availability of existing topsoil.
5. Plant sod by hand to cover indicated area completely. Insure edges of sod are touching. Top dress joints by hand with topsoil to fill voids.
6. Roll grass areas to achieve a smooth, even surface, free from unnatural undulations.
7. Water sod thoroughly as sod operation progresses.
8. Contractor shall maintain all lawn areas until final acceptance. This shall include, but not limited to: mowing, watering, weeding, cultivating, cleaning and replacing dead or bare areas to keep plants in a vigorous, healthy condition.
9. Contractor shall guarantee establishment of an acceptable turf area and shall provide replacement from local supply if necessary.
10. If installation occurs between September 1 and March 1, all sod areas to be over-seeded with Winter Ryegrass, at a rate of (4) pounds per one thousand (1000) square feet.

LANDSCAPE NOTES

1. Contractor shall verify all existing and proposed site elements and notify Architect of any discrepancies. Survey data of existing conditions was supplied by others.
2. Contractor shall locate all existing underground utilities and notify Architect of any conflicts. Contractor shall exercise caution when working in the vicinity of underground utilities.
3. Contractor is responsible for obtaining all required landscape and irrigation permits.
4. Contractor to provide a minimum 2% slope away from all structures.
5. All planting beds and lawn areas to be separated by steel edging. No steel to be installed adjacent to sidewalks or curbs.
6. All landscape areas to be 100% irrigated with an underground automatic irrigation system.
7. All lawn areas to be Solid Sod Bermudagrass, unless otherwise noted on the drawings.

MAINTENANCE NOTES

1. The Owner, tenant and their agent, if any, shall be jointly and severally responsible for the maintenance of all landscapes.
2. All landscape shall be maintained in a neat and orderly manner at all times. This shall include mowing, edging, pruning, fertilizing, watering, weeding and other such activities common to landscape maintenance.
3. All landscape areas shall be kept free of trash, litter, weeds and other such material or plants not part of this plan.
4. All plant material shall be maintained in a healthy and growing condition as is appropriate for the season of the year.
5. All plant material which dies shall be replaced with plant material of equal or better value.
6. Contractor shall provide separate bid proposal for one year's maintenance to begin after final acceptance.



PLANT LEGEND

SYMBOL	PLANT TYPE
	(32) Cedar Elm, 4" cal., B&B, 15'ht., 5' spread min., matching
	(23) Live Oak, 65 gal. cont., 4" cal. 15' ht., 5' spread, 4' branching ht., matching
	(1) Multi-trunk Red Oak (Specimen) 4"-6" cal., B&B 16'ht., 5' spread, 4' branching ht., 3-5 trunk
	(38) Bald Cypress, 65 gal. cont., 4" cal. 15' ht., 5' spread, 4' branching ht., matching
	(11) Crepe Myrtle, 8' ht., 30 gal. cont., 4' spread, 3 trunk min.
	(5) East Palatka Holly, 45 gal. cont., tree from
	(21) Leyland Cypress, 6'-8' Ht., Full to Base
	(496) Dwarf Burford Holly, 5 gal. cont., full 24" spread, 24" o.c.
	(30) Barberry, 5 gal. cont., full, 20" spread, 24" o.c.
	(369) Seagreen Juniper, 5 gal. cont., full 24" spread, 30" ht., 24" o.c.
	3500 s.f. Groundcover, 4" pots, cont., 12" o.c.
	270 s.f. Seasonal Color, 4" pots, cont., full, 12" o.c.
	Lawn, Hydomulch Bermudagrass

SITE DATA

ZONING
USE
LIGHT INDUSTRIAL
OFFICE/ WAREHOUSE

SITE AREA
196,888 SF/4.52 AC.

BUILDING AREA
61,282 SF

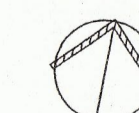
BUILDING COVERAGE
31.1%

BUILDING HEIGHT
1 STORY +/-35'-0"

REQUIRED PARKING:
40% OFFICE: 19,781 SF X 1/800 SF
60% WAREHOUSE: 30,198 SF X 1/1000 SF

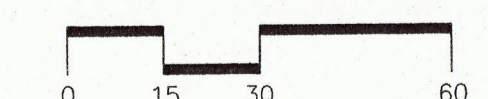
PARKING PROVIDED
HC PARKING PROVIDED

66 SPACES
31 SPACES
97 SPACES
160 SPACES
5 SPACES



PRELIMINARY LANDSCAPE PLAN

1"=30'-0"

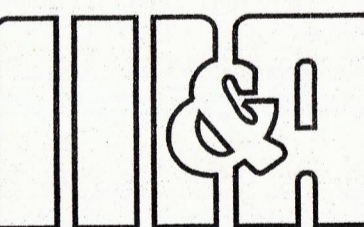


PROGRESS SET - FOR REVIEW ONLY
ISSUED

12.07.01

These documents are for Design Review and NOT intended for Construction or Permit Purposes. They were prepared by, or under the supervision of:

Brian Denis Adams, Tx. Lic. #1761
Steven M. Rahn, Inc.



MEINHARDT & ASSOCIATES
ARCHITECTS, P.L.L.C.

1400 LARKWAY
SUITE 600
DALLAS, TEXAS 75202
817-359-8800

SMR
landscape architecture
STEVEN M. RAHN, INC.
The Brewery Building
703 McKinney Ave.
Suite 438 LB 107
Dallas, Texas 75202
Tel 214.871.0053
Fax 214.871.0545
email smr@smr-la.com

DATE: 12-07-01

DRAWN BY: BKR

CHECKED BY: BA

SHEET:

L1.1



LANDSCAPE SPECIFICATIONS

SECTION 02900

PART 1 - GENERAL

- 1.1 REFERENCED DOCUMENTS
A. Refer to bidding requirements, special provisions, and schedules for additional requirements.
1.2 DESCRIPTION OF WORK
A. Work included: Furnish all supervision, labor, materials, services, equipment and appliances required to complete the work covered in conjunction with the landscaping covered in these specifications and landscaping plans, including:
1. Planting (trees, shrubs, and grass)
2. Bed preparation and fertilization
3. Notification of sources
4. Water and Maintenance until final acceptance
5. Guarantee
1.3 REFERENCE STANDARDS
A. American Standard for Nursery Stock published by American Association of Nurserymen 27 October 1990, Edition; published by American National Standards Institute, Inc. (ANSI) plant material.
B. American Joint Committee on Horticultural Nomenclature: 1942 Edition of Standardized Plant Names.
C. Texas Association of Nurserymen, Grades and Standards.
D. Hortis Third, 1976 - Cornell University.
1.4 NOTIFICATION OF SOURCES AND SUBMITTALS
A. The Contractor shall, within ten (10) days following acceptance of bid, notify the Architect/Owner of the sources of plant materials and bed preparation required for the project.
B. Samples: Provide representative quantities of sandy loam soil, mulch, bed mix material, gravel, and crushed stone. Samples shall be approved by Architect before use on project.
C. Product Data: Submit complete product data and specifications on all other specified materials.
D. Submit three representative samples of each variety of ornamental trees, shrubs, and groundcover plants for Architect's approval. When approved, tag, install, and maintain as representative samples for final installed plant materials.
E. File Certificates of Inspection of plant material by state, county, and federal authorities with Architect if required.
F. Soil Analysis: Provide sandy loam soil analysis if requested by the Architect.

1.5 JOB CONDITIONS

- A. General Contractor to complete the following punch list. Prior to Landscape Contractor installing any portion of landscape installation, General Contractor shall leave planting bed areas three (3) inches below finish grade of sidewalks, drives and curbs as shown on drawings. All lawn areas to receive solid sod shall be left one (1) inch below the finish grade of sidewalks, drives, and curbs. All construction debris shall be removed prior to Landscape Contractor beginning any work.
B. General Contractor shall provide topsoil as described in Section 02200 - Earthwork.
C. Storage of materials and equipment at the job site will be at the risk of the Landscape Contractor. The Owner cannot be held responsible for theft or damage.

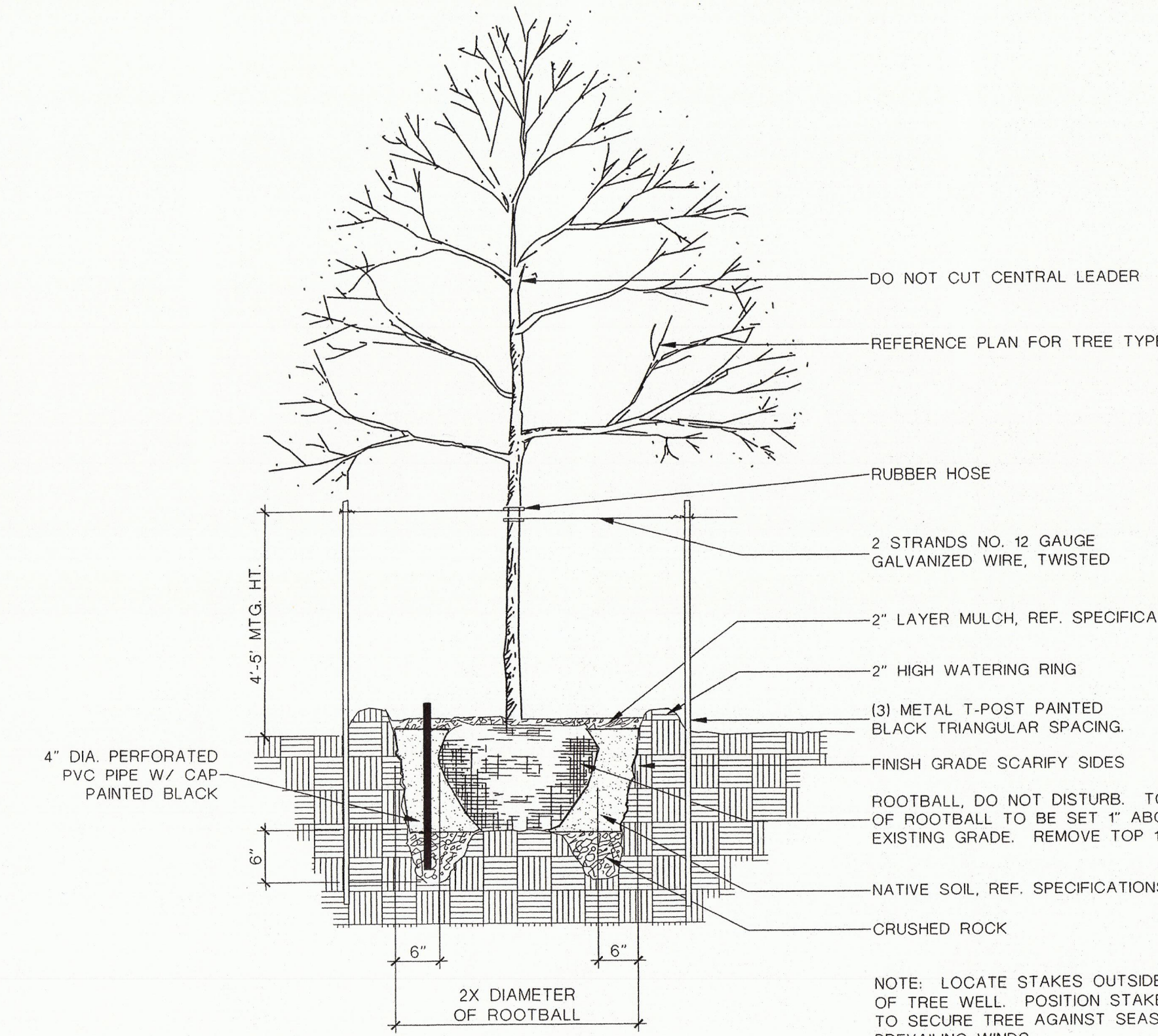
Section 02900 - 01

PART 3 - EXECUTION

3.1 BED PREPARATION & FERTILIZATION

- A. Landscape Contractor to inspect all existing conditions and report any deficiencies to the Owner.
B. All planting areas shall be conditioned as follows:
1. Prepare new planting beds by scraping away existing grass and weeds as necessary. Fill existing soil to a depth of six inches prior to fertilizer and compost application. Apply fertilizer as per manufacturer's recommendations. Add six (6) inches of compost and till into a depth of six (6) inches of the native soil. Apply organic fertilizer such as Systemic or Green Sense at the rate of twenty (20) pounds per one thousand (1000) square feet.
2. All planting bed areas shall receive a two (2) inch layer of specified mulch.
3. Backfill for tree pits shall be as follows: Use existing topsoil on site, free from large clumps, rock, debris, caliche, subsoils, etc., placed in nine (9) inch layers and watered in thoroughly.
C. Grass Areas
1. Areas to be Solid Sod Bermudagrass: Blocks of sod should be laid joint to joint, staggered joints after fertilizing the ground first. Roll grass areas to achieve a smooth, even surface. The joints between the blocks of sod should be filled with topsoil where they are evidently gapped open, then watered thoroughly.
2. Areas to be Hybridon Common Bermudagrass: Hybridon with bermudagrass seed at a rate of two (2) pounds per one thousand (1000) square feet. Use a 4' x 8' water board against the bed areas.

Section 02900 - 05



01 TREE PLANTING DETAIL NOT TO SCALE

1.6 MAINTENANCE AND GUARANTEE

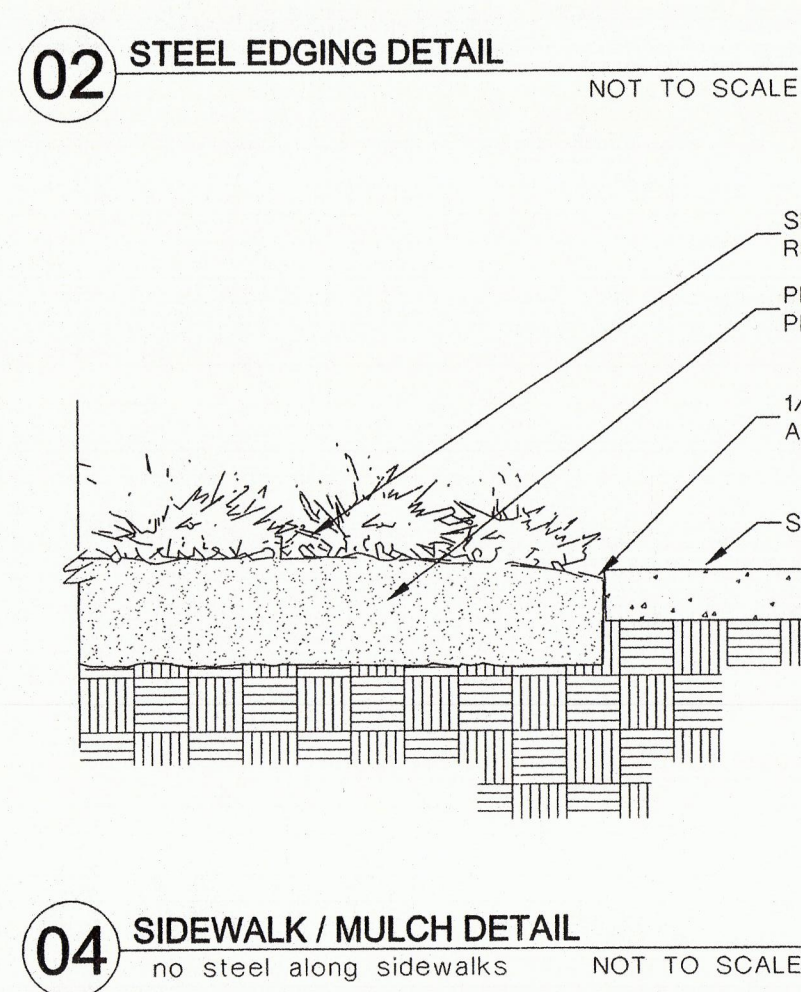
- A. Maintenance:
1. The Landscape Contractor will be held responsible for the maintenance of all work from the time of planting until final acceptance by the Owner. No trees, shrubs, groundcover or grass will be accepted unless they show a healthy growth and satisfactory foliage conditions.
2. Maintenance shall include watering of trees and plants, cultivation, weeding, spraying, edging, pruning of trees, mowing of grass, cleaning up and all other work necessary for maintenance.
3. A written notice requesting final inspection and acceptance should be submitted to the Owner at least seven (7) days prior to completion. An on-site inspection by Owner and Landscape Contractor will be completed prior to written acceptance.
4. After final acceptance of installation, the Landscape Contractor will not be required to do any of the above listed work.
B. Guarantee:
1. Trees shall be guaranteed for a twelve (12) month period after acceptance. Shrubs and groundcover shall be guaranteed for twelve (12) months. The Contractor shall replace all dead plants as soon as weather permits and upon notification of the Owner. Plants, including trees, which have partially died so that shape, size, or symmetry has been damaged shall be considered subject to replacement. In such cases, the opinion of the Owner shall be final.
a. Plants used for replacement shall be of the same kind and size as those originally planted and shall be planted as originally specified. All work, including materials, labor and equipment used in replacements shall carry a twelve (12) month guarantee. Any damage including cuts in lawn or bed areas, incurred as a result of making replacements shall be immediately repaired.
b. At the direction of the Owner, plants may be replaced at the start of the next year's planting season. In such cases, dead plants shall be removed from the premises immediately.
c. When plant replacements are made, plants, soil mix, fertilizer and mulch are to be utilized as originally specified and reaccepted for full compliance with Contract requirements. All replacements are to be included under "Work" of this section.
2. The Owner agrees that for the guarantee to be effective, he will water plants at least twice a week during dry periods and cultivate beds once a month after final acceptance.
3. The above guarantee shall not apply where plants die after acceptance because of injury by storms, hail, freeze, insects, diseases, injury by humans, accidents or theft.
4. Acceptance for all landscape work shall be given after final inspection by the Owner provided the job is in a completed, undamaged condition, and there is a stand of grass in all lawn areas. At this time, the Owner will assume maintenance on the accepted work.

Section 02900 - 02

3.2 INSTALLATION

- A. Maintenance of plant materials shall begin immediately after each plant is delivered to the site and shall continue until all construction has been satisfactorily accomplished.
B. Plant materials shall be delivered to the site only after the beds are prepared and are ready for planting. All shipments of nursery materials shall be thoroughly protected from the drying winds during transit. All plants which cannot be planted at once, after delivery to the site, shall be well protected against the possibility of drying by wind and sun. Balls of earth of B & B plants shall be kept covered with soil or other acceptable material. All plants remain the property of the Contractor until final acceptance.
C. Position the trees and shrubs in their intended location as per plan.
D. Notify the Landscape Architect for inspection and approval of all positioning of plant materials.
E. Excavate pits with vertical sides and horizontal bottom. Tree pits shall be large enough to permit tending and planting without injury to balls of earth or roots and shall be of such depth that, when planted and settled, the crown of the plant shall bear the same relation to the finish grade that it did to soil surface in place of growth.

Section 02900 - 06



02 STEEL EDGING DETAIL NOT TO SCALE

1.7 QUALITY ASSURANCE

- C. Selection of Plant Material (cont.)
4. Owner and/or Architect retains the right to further inspect all plant material upon arrival at the site and during installation for size and condition of root balls, limbs, branching habit, insects, injuries, and latent defects.
5. Owner and/or Architect may reject unsatisfactory or defective material at any time during the process of installation. Remove rejected materials from the site immediately. Plants damaged in transit or at job site shall be rejected.
1.8 PRODUCT DELIVERY, STORAGE AND HANDLING
A. Preparation:
1. Balled and Burlapped (B&B) Plants: Dig and prepare shipment in a manner that will not damage roots, branches, shape, and future development.
2. Container Grown Plants: Deliver plants in rigid container to root ball shape and protect root mass.
B. Delivery:
1. Deliver packaged materials in sealed containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and delivery.
2. Deliver only plant materials that can be planted in one day unless adequate storage and watering facilities are available on job site.
3. Protect root balls by heeling in with sawdust or other approved moisture retaining material if not planted within 24 hours of delivery.
4. Protect plants during delivery to prevent damage to root balls or desiccation of leaves. Keep plants moist at all times. Cover all materials during transport.
5. Notify Architect of delivery schedule 72 hours in advance so plant material may be observed upon arrival at job site.
6. Remove rejected plant material immediately from site.
7. To avoid damage or stress, do not lift, move, adjust to plumb, or otherwise manipulate plants by trunk or stems.

PART 2 - PRODUCTS

2.1 PLANTS

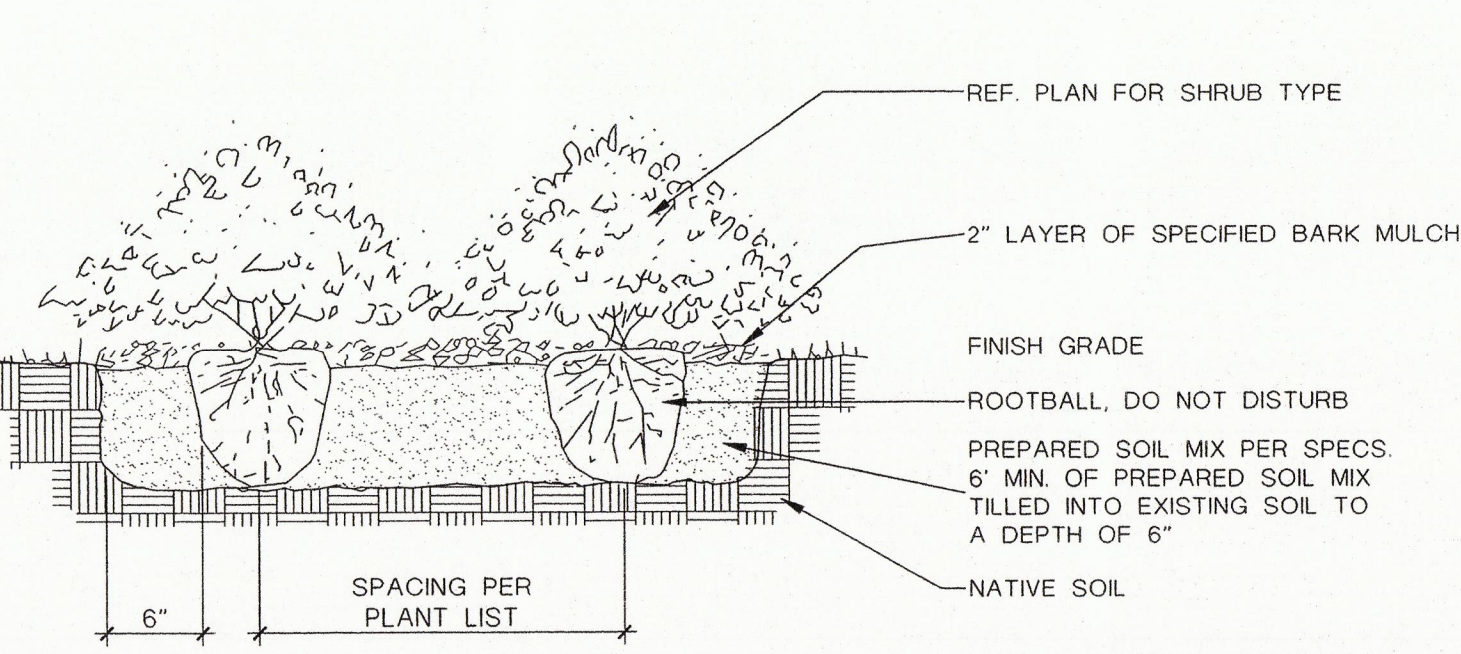
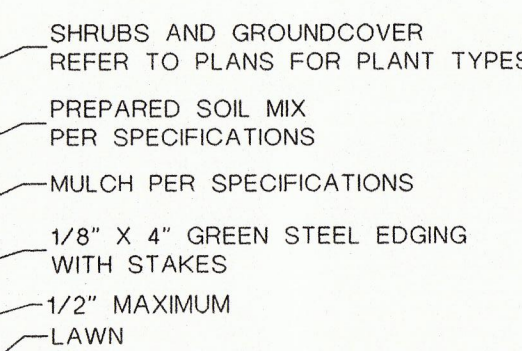
- A. General: Well-formed No. 1 grade or better nursery grown stock. Listed plant heights are from tops of root balls to normal tops of plants. Plant spread refers to normal outer width of the plant, not to the outer leaf tips. Plants will be individually approved by the Architect and his decision as to their acceptability shall be final.
B. Quantities: the drawings and specifications are complementary; anything called for on one and not the other is as binding as if shown and called for on both. The plant schedule is an aid to bidders only. Confirm all quantities on plan.
C. Quality and size: Plant materials shall conform to the size given on the plan and shall be healthy, symmetrical, well shaped, full branched and well rooted. The plants shall be free from injurious insects, diseases, injuries to the bark or roots, broken branches, objectionable distortions, insect eggs and larvae and are to be of specimen quality.
D. Approval: All plant materials shall be subject to the approval of the Owner and/or Landscape Architect. All plants which are found unsuitable in growth, or in any unhealthy, badly shaped, or undesirable condition, will be rejected by the Landscape Architect, either before or after planting, and shall be removed at the expense of the Landscape Contractor and replaced with acceptable plants as specified.
E. Trees shall be healthy, full branched, well shaped, and shall meet the trunk diameter and height requirements of the plant schedule. Balled and Burlapped shall be firm, neat, slightly tapered, and well wrapped in burlap. Any tree loose in the ball or with broken ball at time of planting will be rejected. Balls shall be ten (10) inches in diameter for each one (1) inch of trunk diameter, measured six (6) inches above ball.
a. Nomenclature conforms to customary nursery usage; for clarification, the term "multi-trunk" defines a plant having three (3) or more trunks of nearly equal diameter.
F. Pruning: All pruning of trees and shrubs, as directed by Landscape Architect, shall be executed by Landscape Contractor at no additional cost to the Owner.

Section 02900 - 03

3.2 INSTALLATION (CONT.)

- F. Shrub and tree pits shall be no less than two (2) feet, twenty-four (24) inches wider than the lateral dimension of earth ball and six (6) inches deeper than its vertical dimension. Remove and haul from site all rocks or stones over one (1) inch in diameter. Plants should be thoroughly moist before removing containers.
G. Dig a wide, rough sided hole exactly the same depth as the height of the ball, especially at the surface of the ground. The sides of the hole should be rough and jagged, never slick or glazed.
H. Percolation Test: Fill the hole with water. If the water level does not percolate within 24 hours, the tree needs to be moved to another location or have pier hole drainage added.
I. Backfill only with 5 parts existing soil or sandy loam and 1 part bed preparation. When hole is dug in solid rock, topsoil from the same area should not be used. Carefully settle by watering to prevent air pockets. Remove the burlap from the top 1/3 of the ball as well as all nylon, plastic string and wire mesh. Container trees will usually be pot bound, if so follow standard nursery practice of "root scoring".
J. Do not wrap trees.
K. Do not over prune.
L. Mulch the top of the ball. Do not plant grass all the way to the trunk of the tree. Leave the area above the top of the ball unplanted and mulch with at least two (2) inches of specified mulch.
M. All plant beds and trees to be mulched with a minimum settled thickness of two (2) inches over the entire bed or pit.
N. Obstruction below ground: In the event rock or underground construction work or obstructions are encountered in any plant pit excavation work to be done under this section, alternate locations may be selected by the Owner. Where locations cannot be changed, the obstructions shall be removed to a depth of not less than three (3) feet below grade and no less than six (6) inches below bottom of ball when plant is properly set at the required grade. The work of this section shall include the removal from the site of such rock or underground obstructions encountered at the cost of the Landscape Contractor.

Section 02900 - 07



03 SHRUB / GROUND COVER DETAIL NOT TO SCALE

Section 02900 - 04

3.2 INSTALLATION (CONT.)

- O. Trees and large shrubs shall be staked as site conditions require. Position stakes to secure tree against seasonal prevailing winds.
P. Pruning and Mulching: Each area shall be pruned in accordance with standard horticultural practice to preserve the natural character of the plant and in the manner fitting its use in the landscape design.
1. Dead wood or suckers and broken or badly bruised branches shall be removed. General topping of all branches is not permitted.
2. Pruning shall be done with clean sharp tools.
3. Immediately after planting operations are completed, all tree pits shall be covered with a layer of specified mulch two (2) inches in depth. This limit of the specified mulch for trees shall be the diameter of the plant pit.
Q. Steel Curbing Installation:
1. Curbing shall be staked as indicated on plans.
2. At steel curbing shall be free of kinks or abrupt bends.
3. Top of curbing shall be 1/2" maximum higher than existing grade.
4. Stakes are to be installed on the planting bed side of the curbing, as opposed to the grass side.
5. Do not install steel edging along sidewalks.
6. Cut steel edging at 45 degree angle where edging meets sidewalk.
3.3 CLEANUP AND ACCEPTANCE
A. Cleanup: During the work, the premises shall be kept neat and orderly at all times. Storage areas for all materials shall be so organized that they, too, are neat and orderly. All trash and debris shall be removed from the site as work progresses. Keep paved areas clean by sweeping or hosing at end of each days' work.

END OF SECTION

Section 02900 - 08

PROGRESS SET - FOR REVIEW ONLY ISSUED 12.07.01

These documents are for Design Review and NOT intended for Construction or Permit Purposes. They were prepared by, or under the supervision of:

Brian Denis Adams, Tx. Lic. #1761 Steven M. Rahn, Inc.

DATE: 12-07-01 DRAWN BY: BKR CHECKED BY: BA SHEET:



SMI landscape architecture STEVEN M. RAHN, INC. The Brewery Building 703 McKinney Ave. Suite 438 LB 107 Dallas, Texas 75202 Tel 214.871.0083 Fax 214.871.0545 email smi@smi-la.com

