Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log Rx Site No. 28

Set 1.1

Re: Condx Ref. No. 2 Date / Time 12/31/98 13:11 CST

Re: Condx Ref. No. 2 Operator: SMW

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	80	80	80	82	81	81	79	80	82	80	80.5
18	79	79	79	79	77	79	78	79	79	78	78.6
20	82	81	79	82	81	82	80	81	82	80	81

Estar T.V. Signal Strength Readings

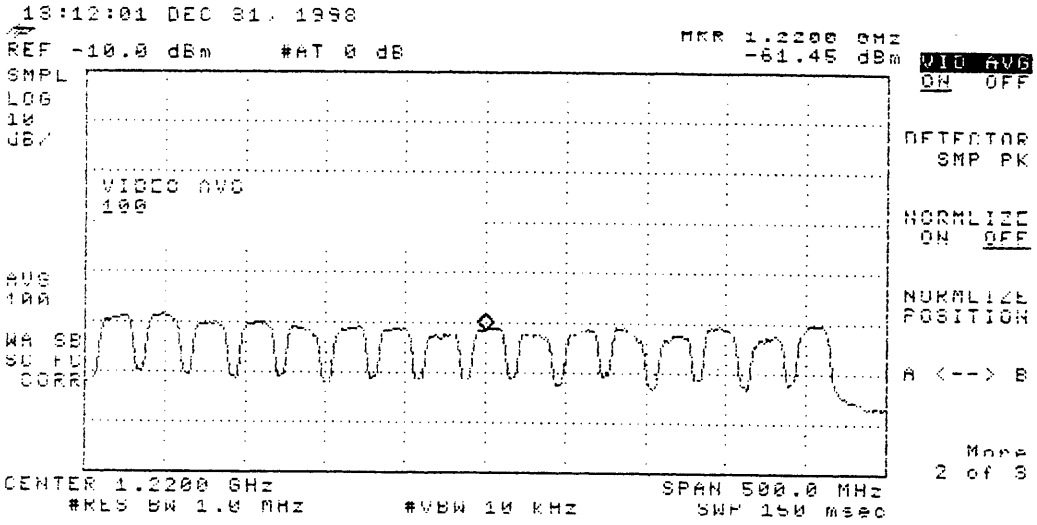
Tsp No	Signal Strength Readings										Avg
16	89	90	89	90	90	90	90	89	89	89	89.5
18	89	89	88	89	89	89	89	89	89	89	88.9
20	91	92	91	91	92	91	92	91	92	91	91.4

Notes: 60°-65°, Can Barely see downtown, Alot of traffic going by.

1. OTV, 12/31/98, Site-28

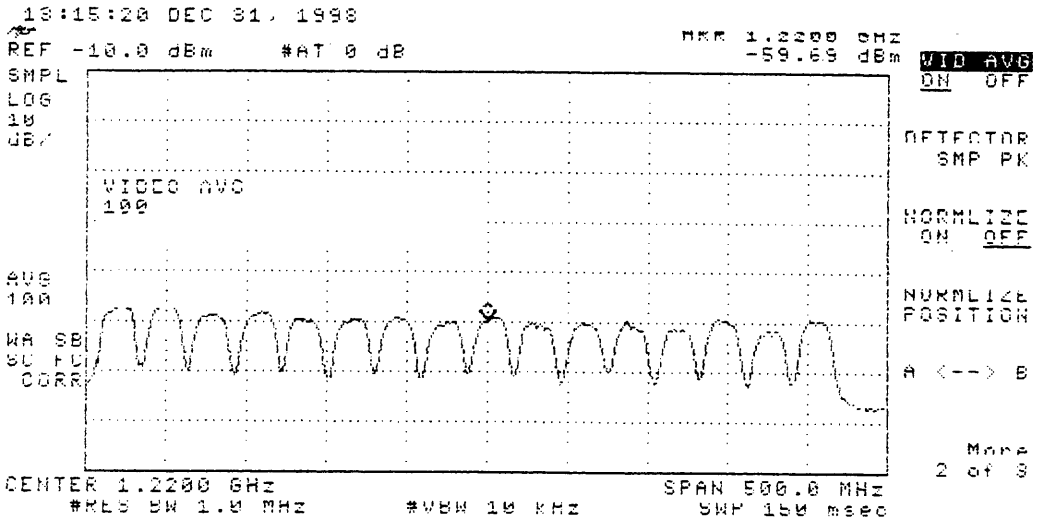
Boom Down

Plot-28-D



1. Estar, 12/31/98, Site-28
Boom Down

Plot-28-E

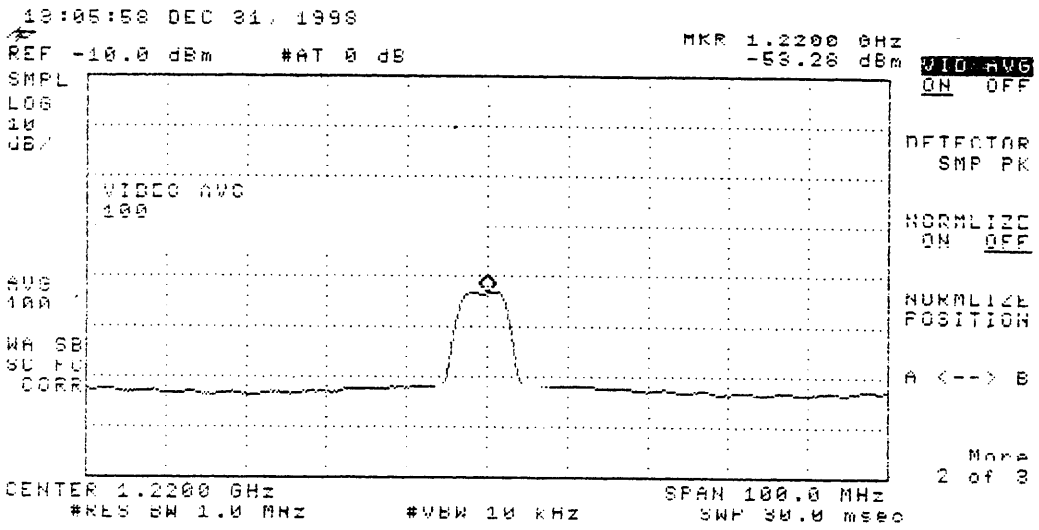


I. N.P., 12/31/98, Site - 28

Boom Down

Picture good on T.V.

Plot 28-N



COMMENTS FROM SITE 28

Site 28 Gains Ranch loop

a. Heavy fog can barley see downtown buildings. Rain off and on. A lot of traffic.

Rx Site Data Log Hts 1st & Wm Cannon

Rx Site No. 29 p1
Set: 1 / ___

Re: Rx Condx Ref. No. 2 Date / Time: 12/31/98 3:30 CST

Re: Tx Condx Ref. No. 2 Operator: MWH

Data Measurements:

(1) On arrival --
- Position and deploy antenna platform (first at ground level).
- Position GPS Receiver and allow to average during site occupation.
- Obtain information for Rx Site Location Log.
- Point Precision Horn Antenna toward Tx (approx. direction)

(2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -60.97 dBm Plot ID Code 29-D
Tx OFF: – Peak -- _____ dBm Plot ID Code _____

Comments: _____

EchoStar – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -60.37 dBm Plot ID Code 29-E
Tx OFF: – Peak -- _____ dBm Plot ID Code _____

Comments: _____

Rx Site Data Log

Rx Site No. 29 p2
Set: 1 / ___

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx , while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N___ Comments: _____.

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -64.78 dBm Plot ID Code -- 29-N.

Comments: _____.

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm Plot ID Code -- _____.

Comments: _____.

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log Rx Site No. 29

Set 1.1

Re: Condx Ref. No. 2 Date / Time 12/31/98 3:36 CST

Re: Condx Ref. No. 2 Operator: MWH

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	81	80	80	81	81	82	80	80	79	80	80.4
18	79	80	80	79	80	78	78	80	79	79	79.2
20	80	80	80	81	81	80	82	82	80	81	80.7

Estar T.V. Signal Strength Readings

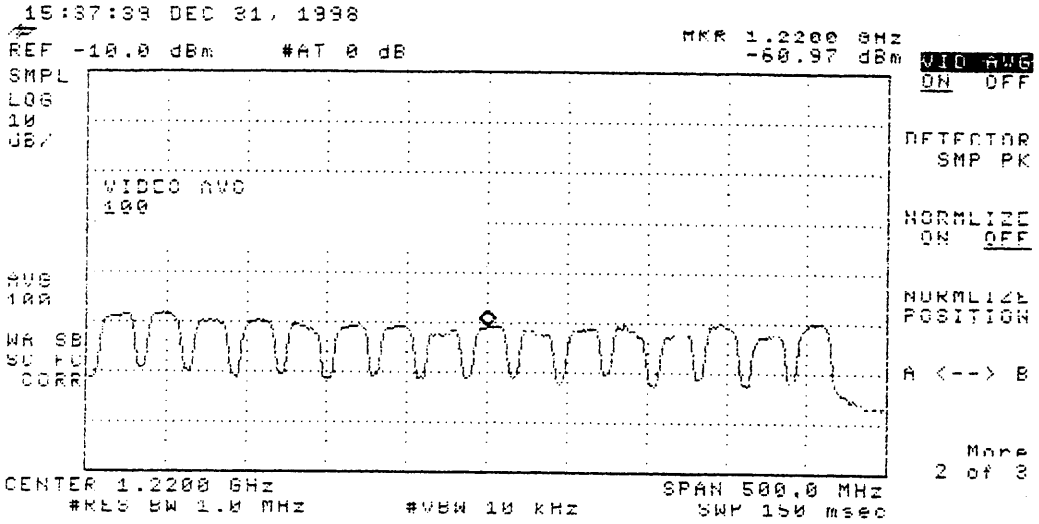
Tsp No	Signal Strength Readings										Avg
16	85	86	86	86	86	86	87	87	87	86	86.2
18	85	85	86	85	86	85	84	84	85	85	85.2
20	88	89	89	88	89	88	89	89	89	88	88.4

Notes: 60°-65°, Can't See Downtown, Heavy Fog

1. DTV, 12/31/98, Site-29

~~Boom Down~~ Room ~27'

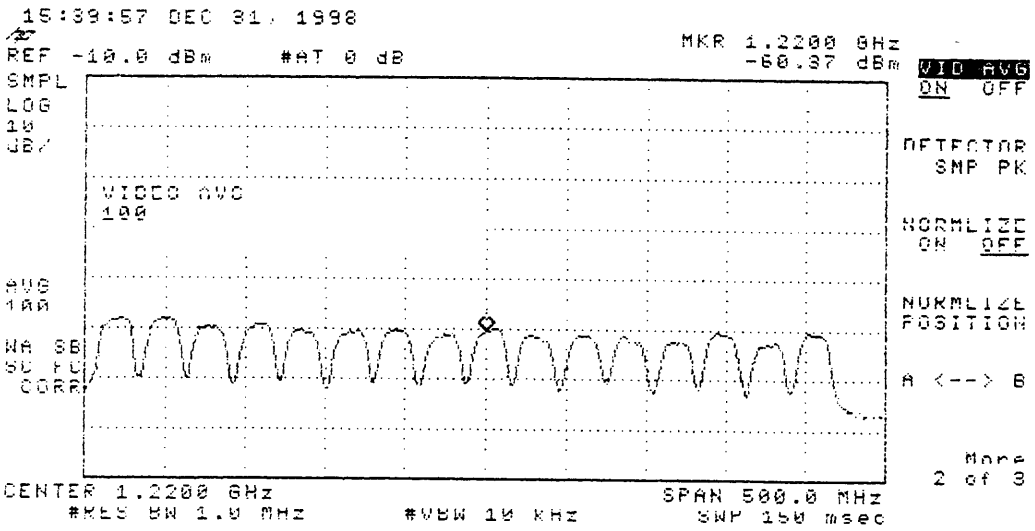
Plot-29-D



1. Estar, 12/31/98, Site-29

~~Boom Down~~ Boom 27'

Plot-29-E

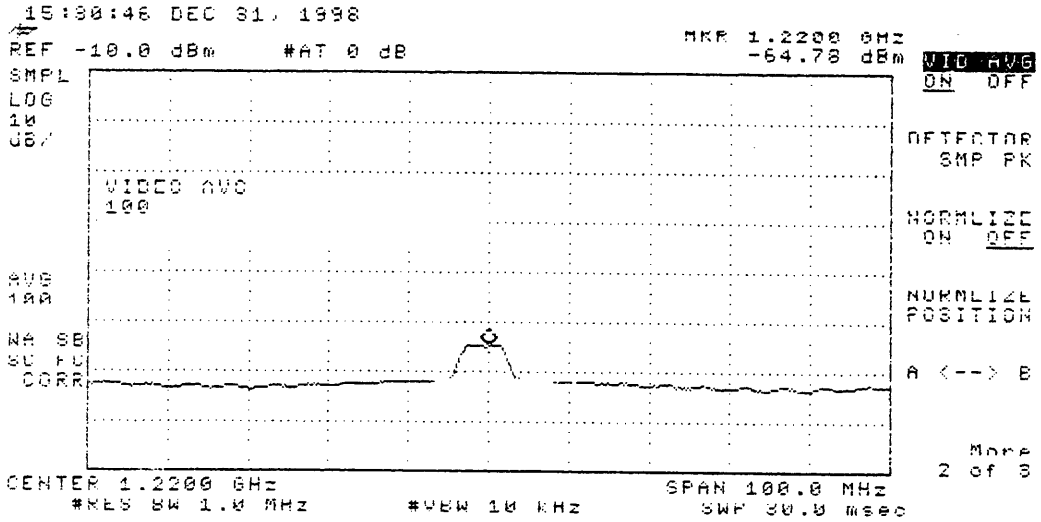


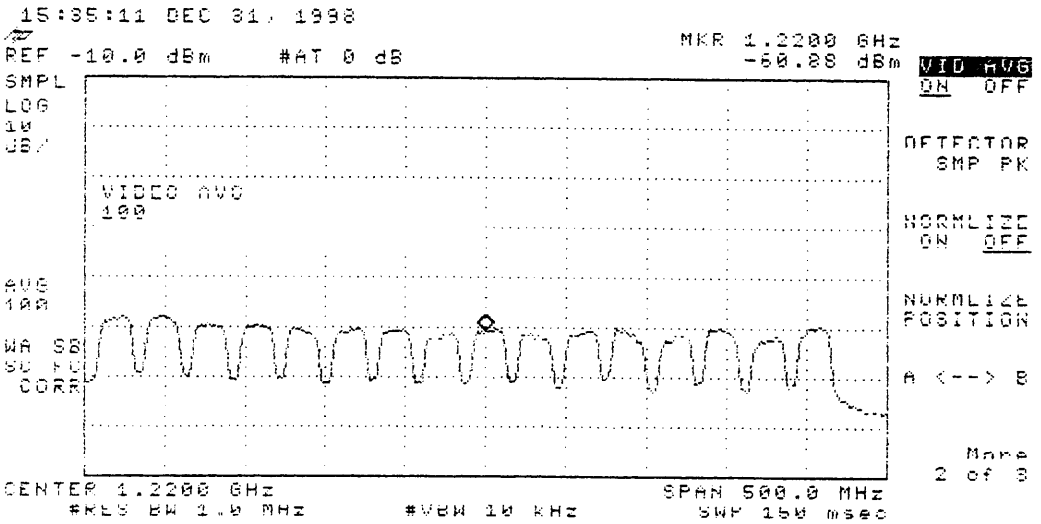
1. N.P., 12131198, Site-29

~~Boom Down~~ Boom ~ 27'

2. Pointing through trees and Power lines.

Plot-29-N





COMMENTS FROM SITE 29

Site 29 HEB 1st and WmCannon

a. Heavy fog can barley see downtown buildings

b. NP pointing through trees and power lines

B. Rx Site Maps

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 1 p1

Set: ___/___

Site Name: Hyatt

Date / Time: ** 12/8/98 10:30 CST

Operator: [signature]

GPS Receiver Reading at Site:

Time Read 10:39:17 CST

8Dec98 [signature]

Lat: N 30° 15' 33.2"

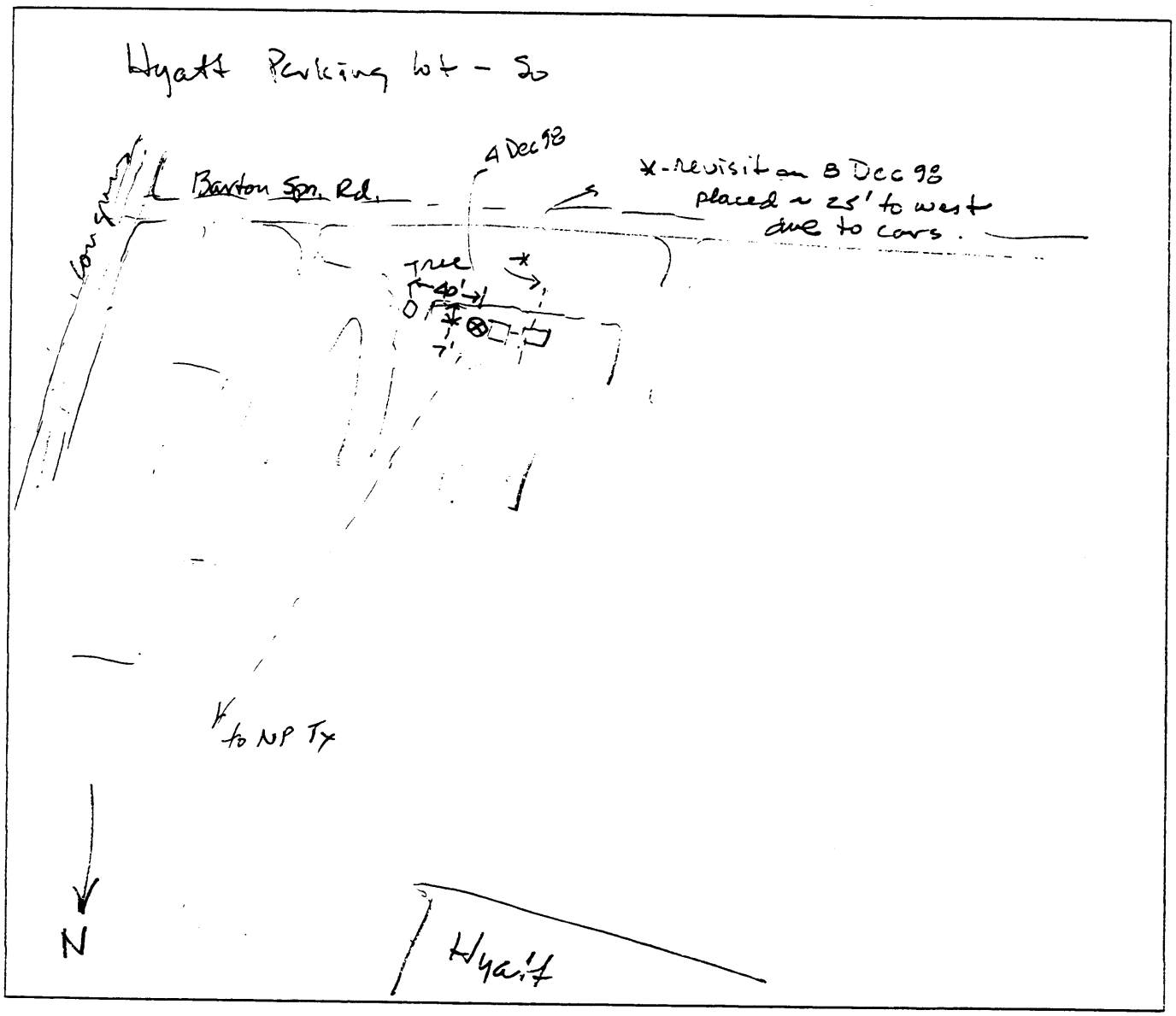
Lon: W 97° 44' 50.1"

Elev: 424'

on Line ~2hrs

Map Sketch (show street reference and local benchmark features):

** orig site occupation 4Dec98 [signature]



Reflections

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 1 p1

Set: 2 /2

Site Name: HYAT

Date / Time: 12/16/98 11:47 CST

Operator: ME / Dan

GPS Receiver Reading at Site:

Time Read _____CST

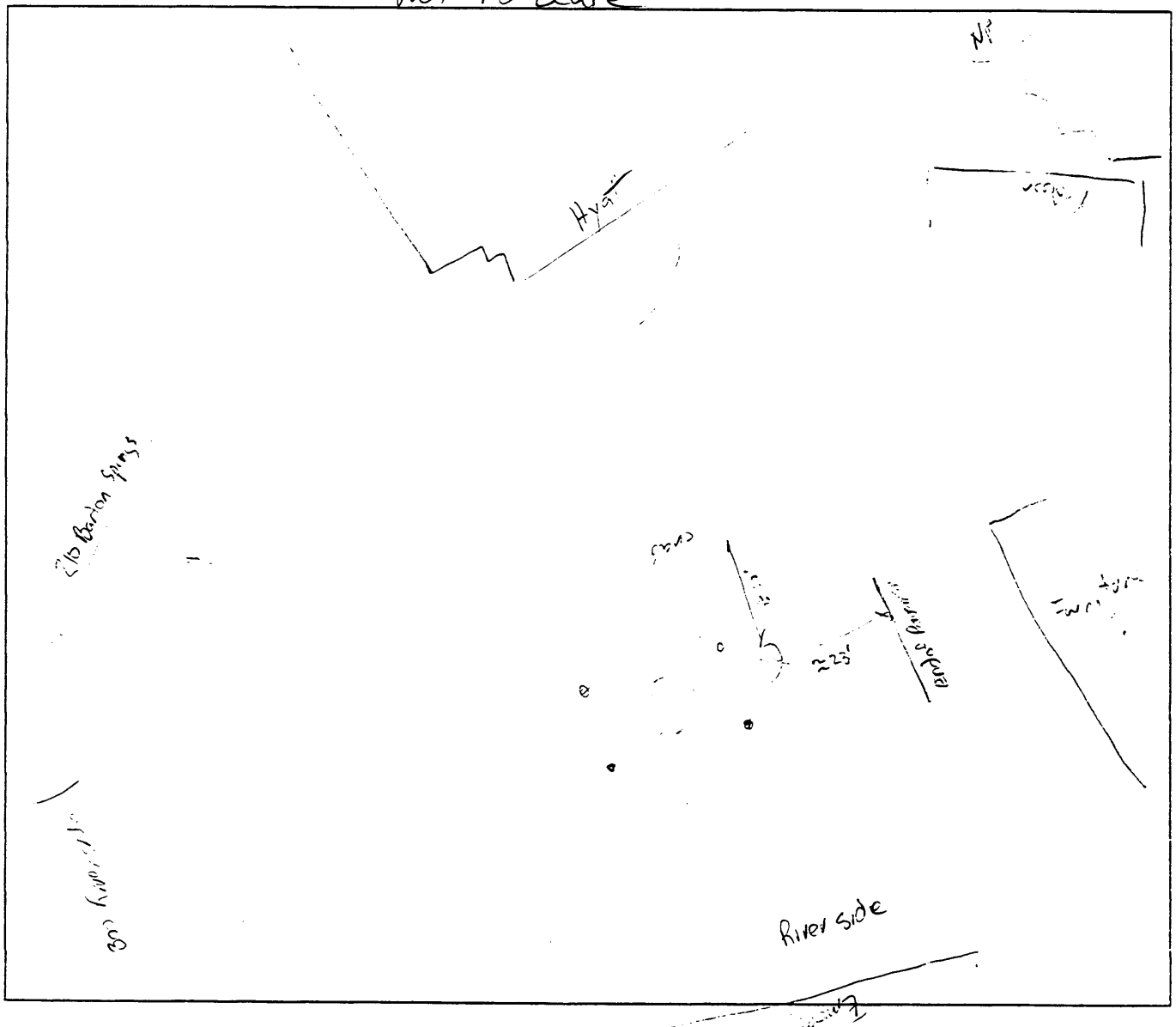
Lat: See Set 1/2

Lon: _____

Elev: _____

Map Sketch (show street reference and local benchmark features):

Not to Scale



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 2 p1

Set: 1/1

* 12/23/98 4:20p

Date / Time: [illegible] CST

Operator: [illegible]

GPS Receiver Reading at Site:

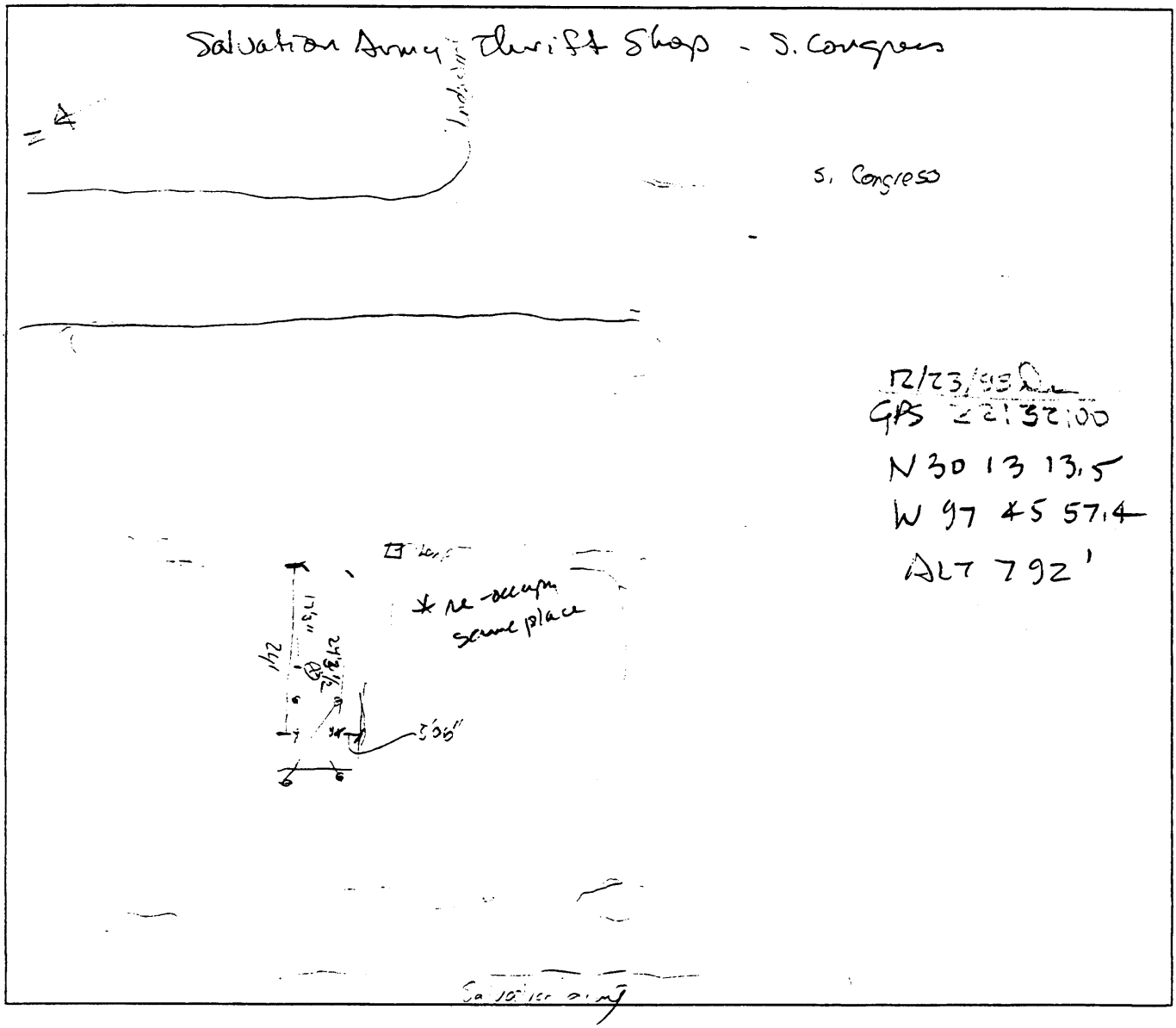
Lat: N 30°13'13.5 N 30°13'13.2

Lon: W 97°45'57.5" W 97°45'57.4"

Elev: 580ft. 690ft.

2107 2212

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 3 p1

Set: 1 / 2

Site Name: Palmer Auditorium

Date / Time: 12/07/02 10:47 CST

Operator: M. Edge

GPS Receiver Reading at Site:

Time Read _____ CST

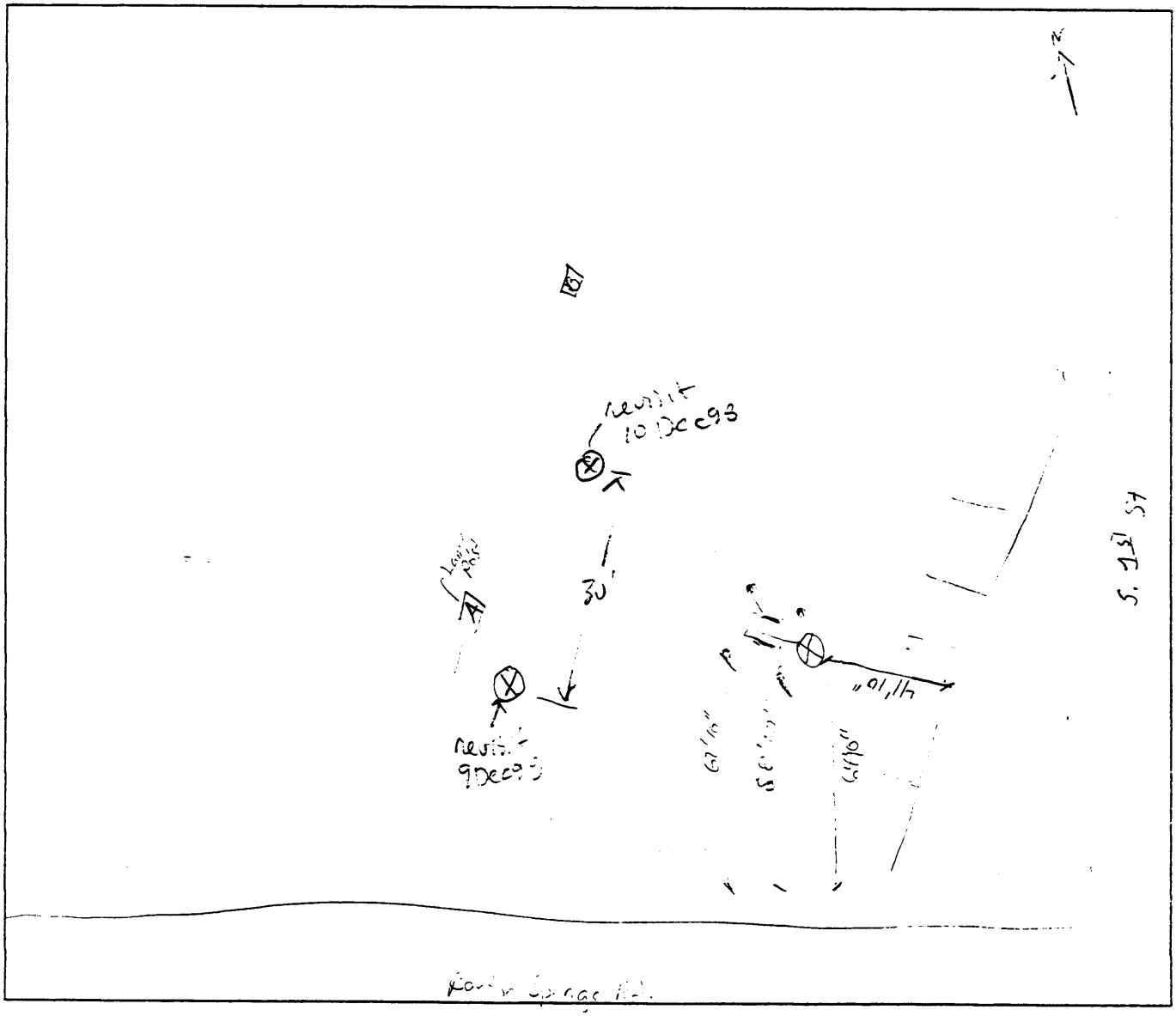
Lat: N30° 15' 32.

Lon: W97° 45' 02.3"

Elev: 390'

10:47A

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 3 p1

Set: 2 / 2

Site Name: Palmer Auditorium

Date / Time: 12/12/98 __:__ CST

Operator: ME

GPS Receiver Reading at Site:

Time Read _____CST

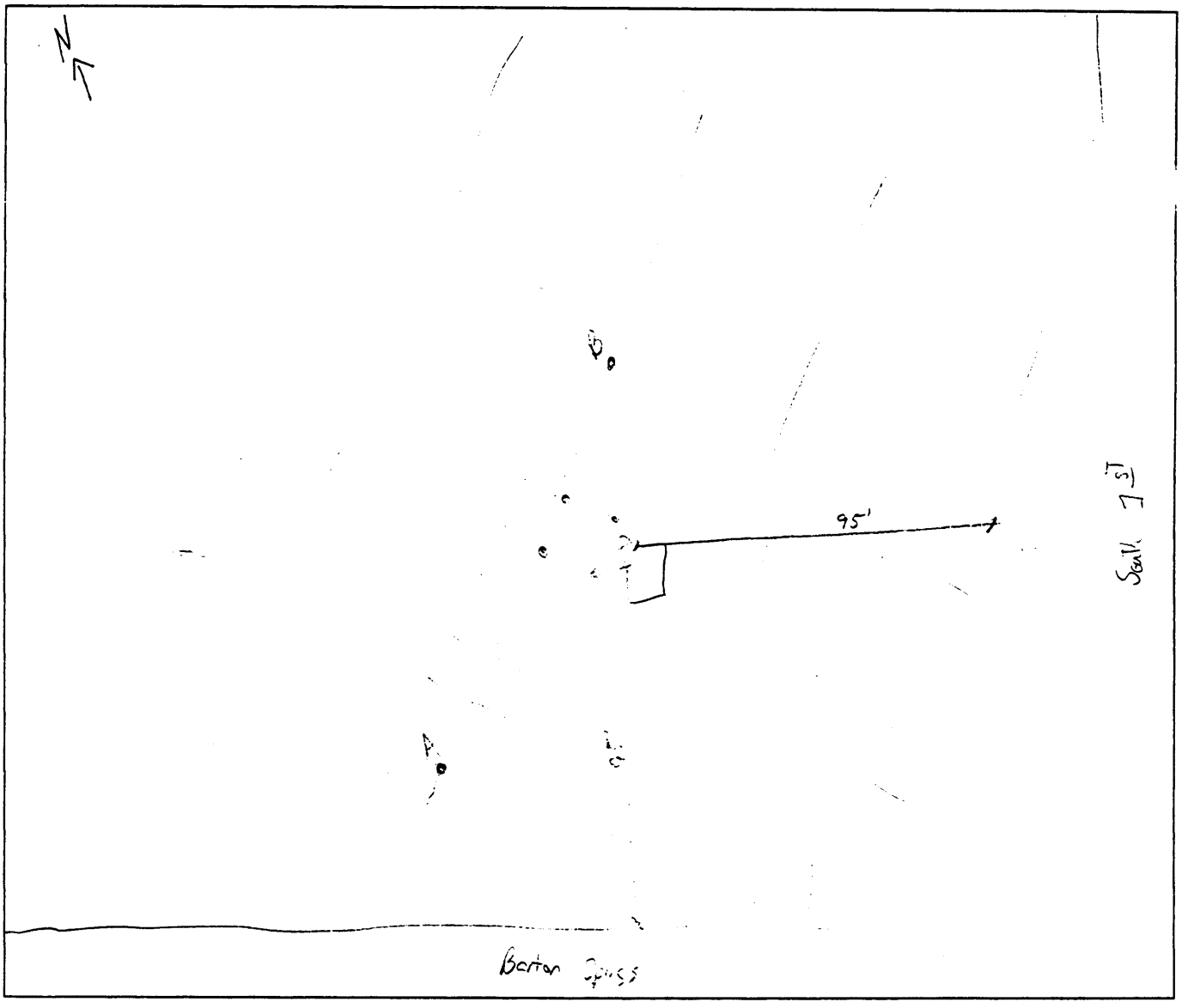
Lat: N 30° 15' 33.0"

Lon: W [illegible] 15' 07.3"

Elev: 469 Ft

17:38

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 4 p1

Set: 1 / ___

Site Name: [illegible]

Date / Time: 12/07/98 12:30 CST

Operator: M. Edge

GPS Receiver Reading at Site:

Time Read 18:45 CST

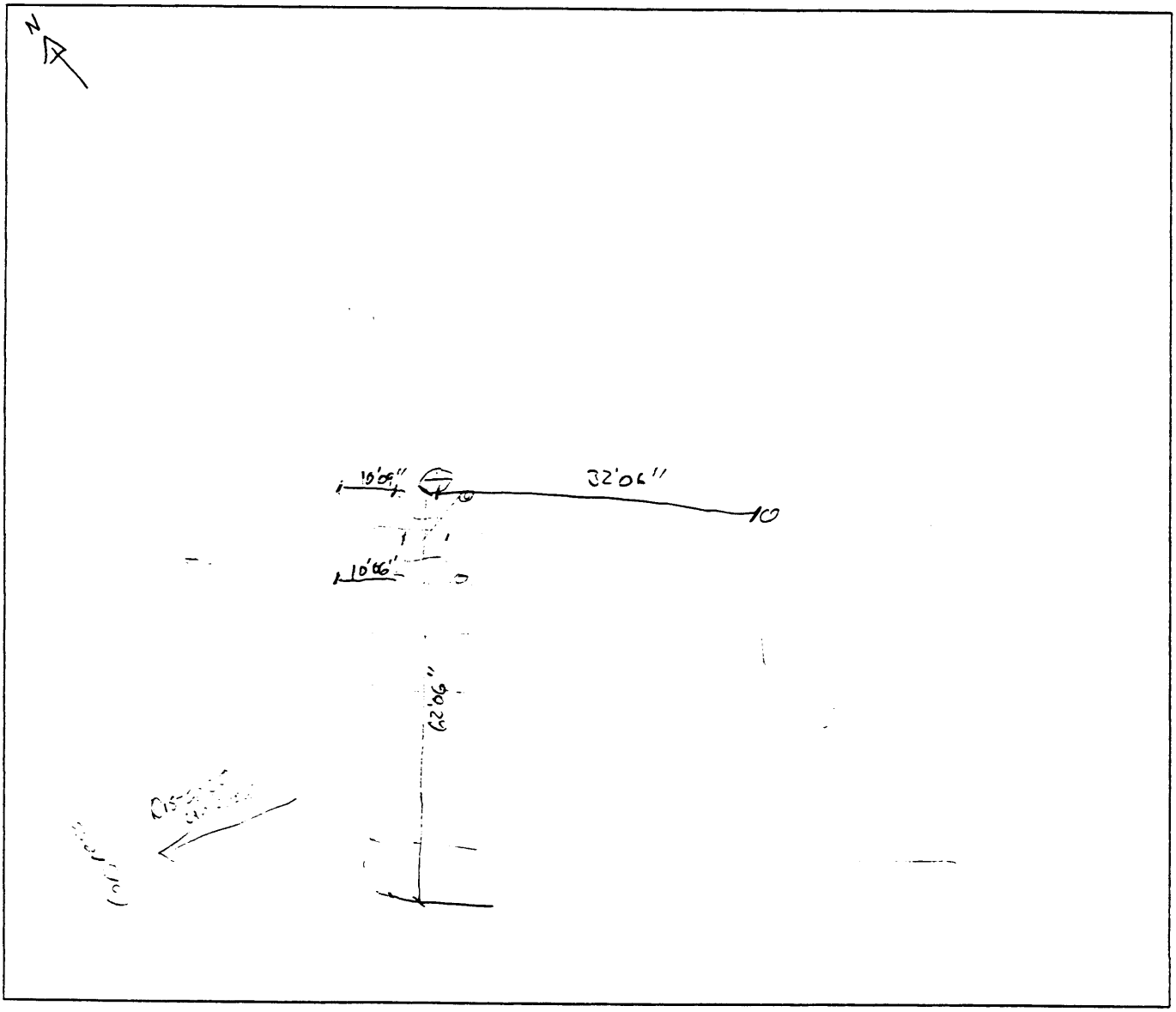
Lat: N 30° 15' 26.5" N 30° 15' 26.3" N30° 15' 26.0"

Lon: W 097° 44' 36.5" W097° 44' 36.4" W097° 44' 36.7"

Elev: 701' 709' 508'

18:45 19:10 21:32

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 5 p1

Set: 1 / ___

Site Name: Jalisco

Date / Time: 12/16/98 3:25 CST

Operator: MIE / MWH

GPS Receiver Reading at Site:

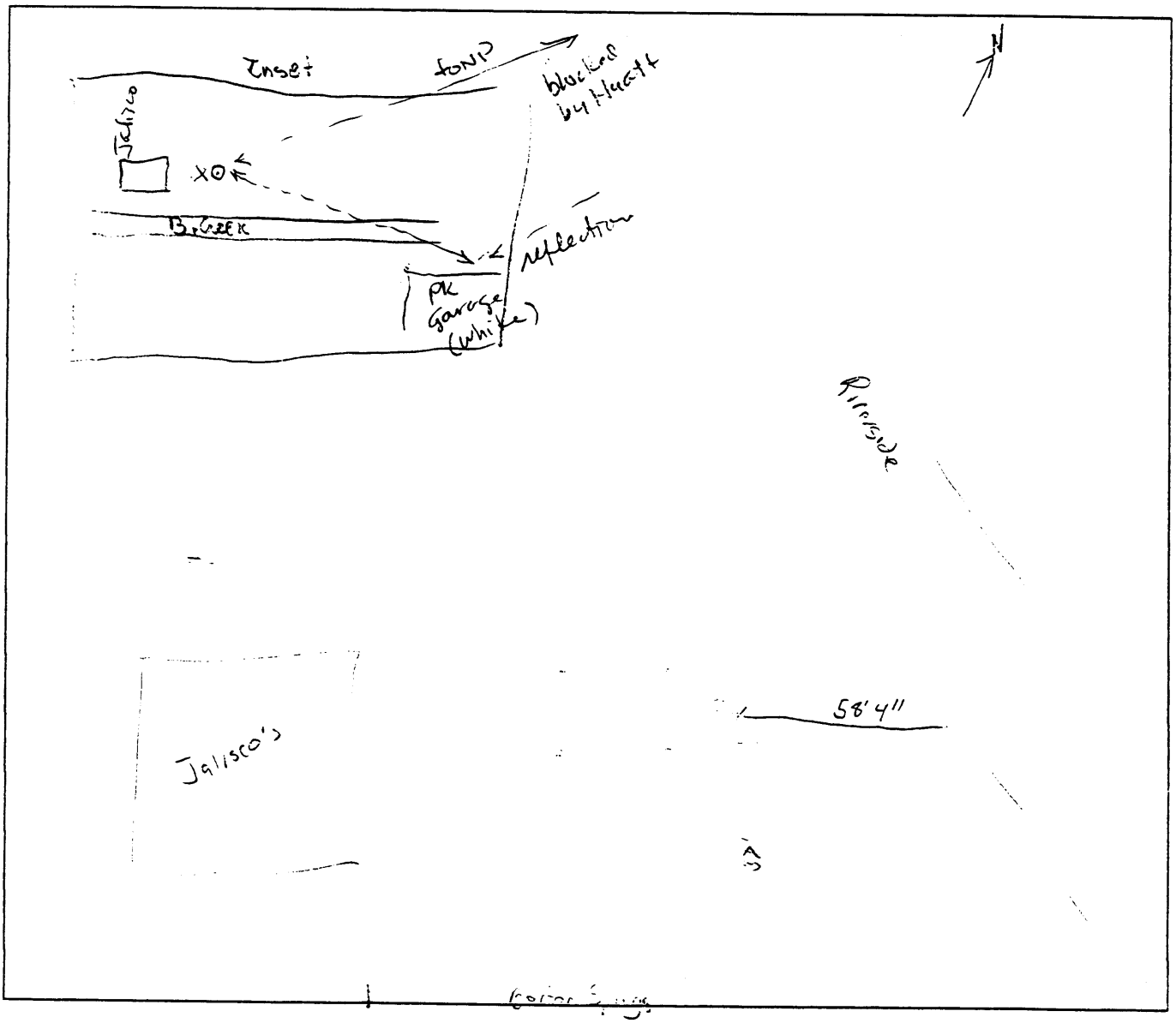
Time Read 3:34 CST

Lat: N 30° 15' 34.6" 21:32:00

Lon: W 97° 44' 55.2"

Elev: 532'

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 6 p1

* 12/22/98 Set: 1/1

Site Name: Coliseum

Date / Time: 12/17/98 2:57 CST

Operator: ME

GPS Receiver Reading at Site:

Time Read 2:57 CST

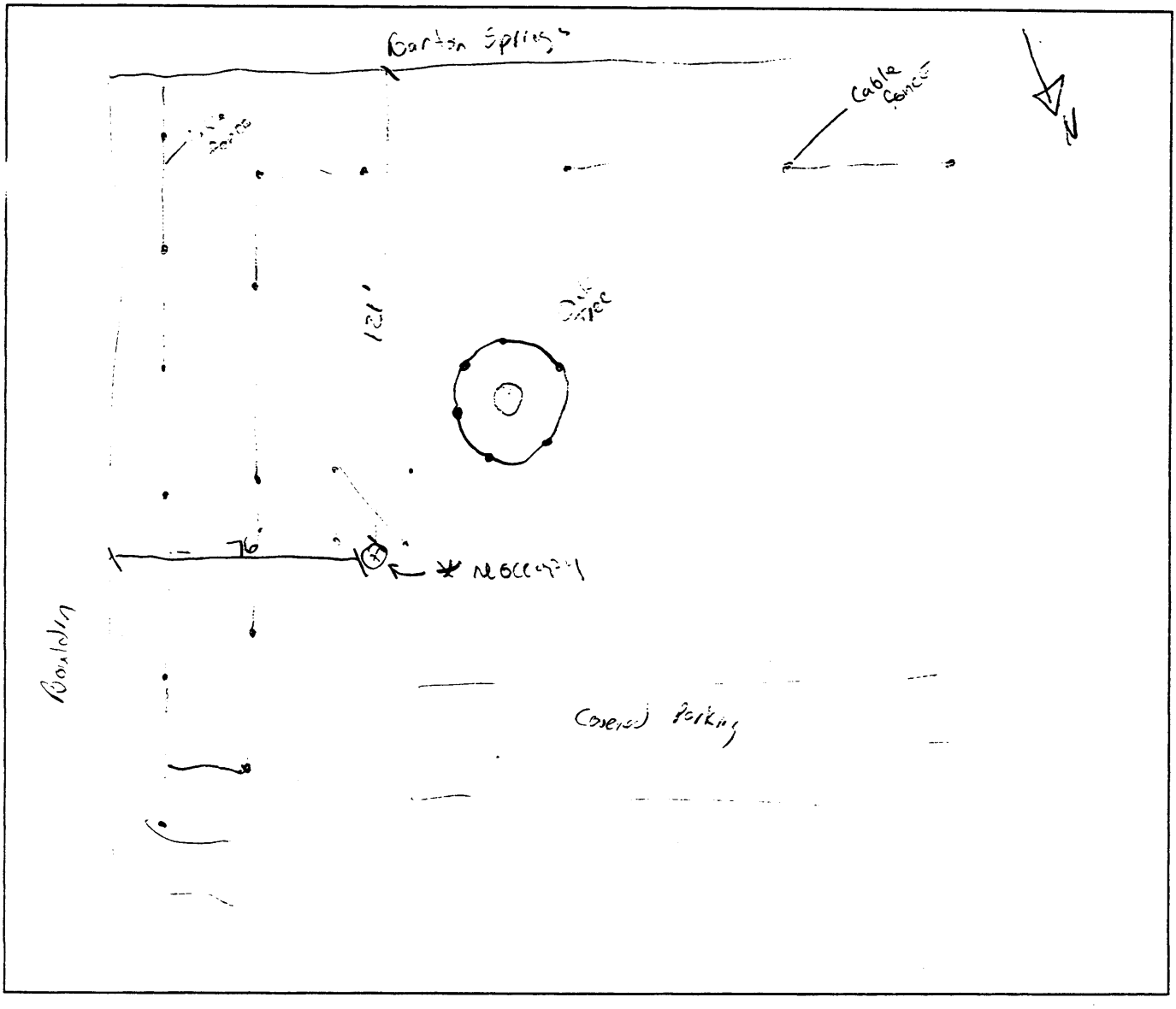
Lat: N 30° 15' 35.8"

Lon: W 097° 45' 13.2"

Elev: 464 ft+

20:56:47

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 7 p1

Set: 1 / *12/22/98

Site Name: Palmer ⊛¹

Date / Time: 12 / 17 / 98 4 :30pCST

Operator: DRW

GPS Receiver Reading at Site:

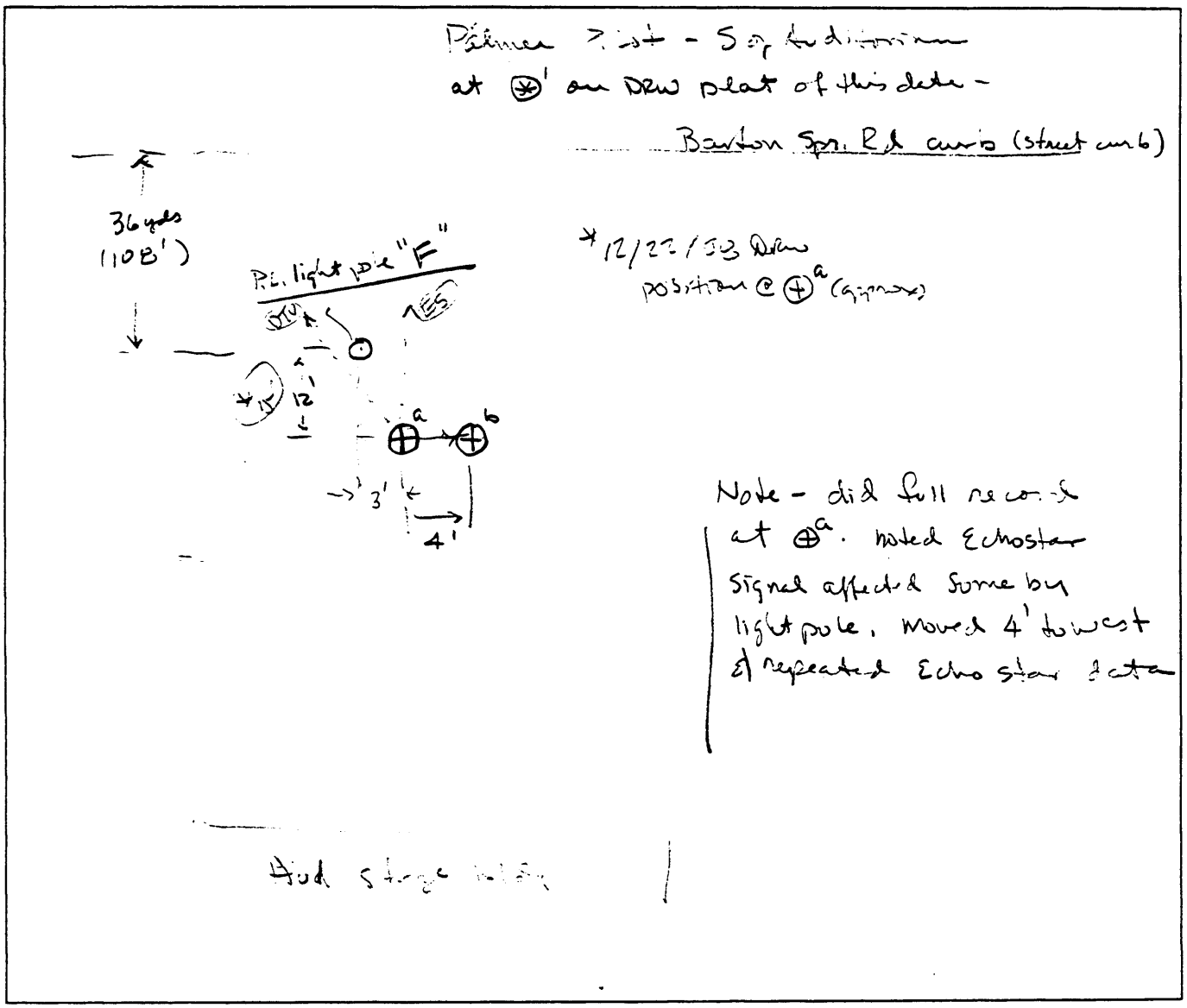
Time Read 4:09p CST

Lat: N 30 15 32.7

Lon: W 97 45 08.6

Elev: 589

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 8 p1

Set: 1 1 * 12/22/98

Site Name: Palmer @2

Date / Time: 12/18/98 : CST

Operator: [illegible]

GPS Receiver Reading at Site:

Time Read _____ CST

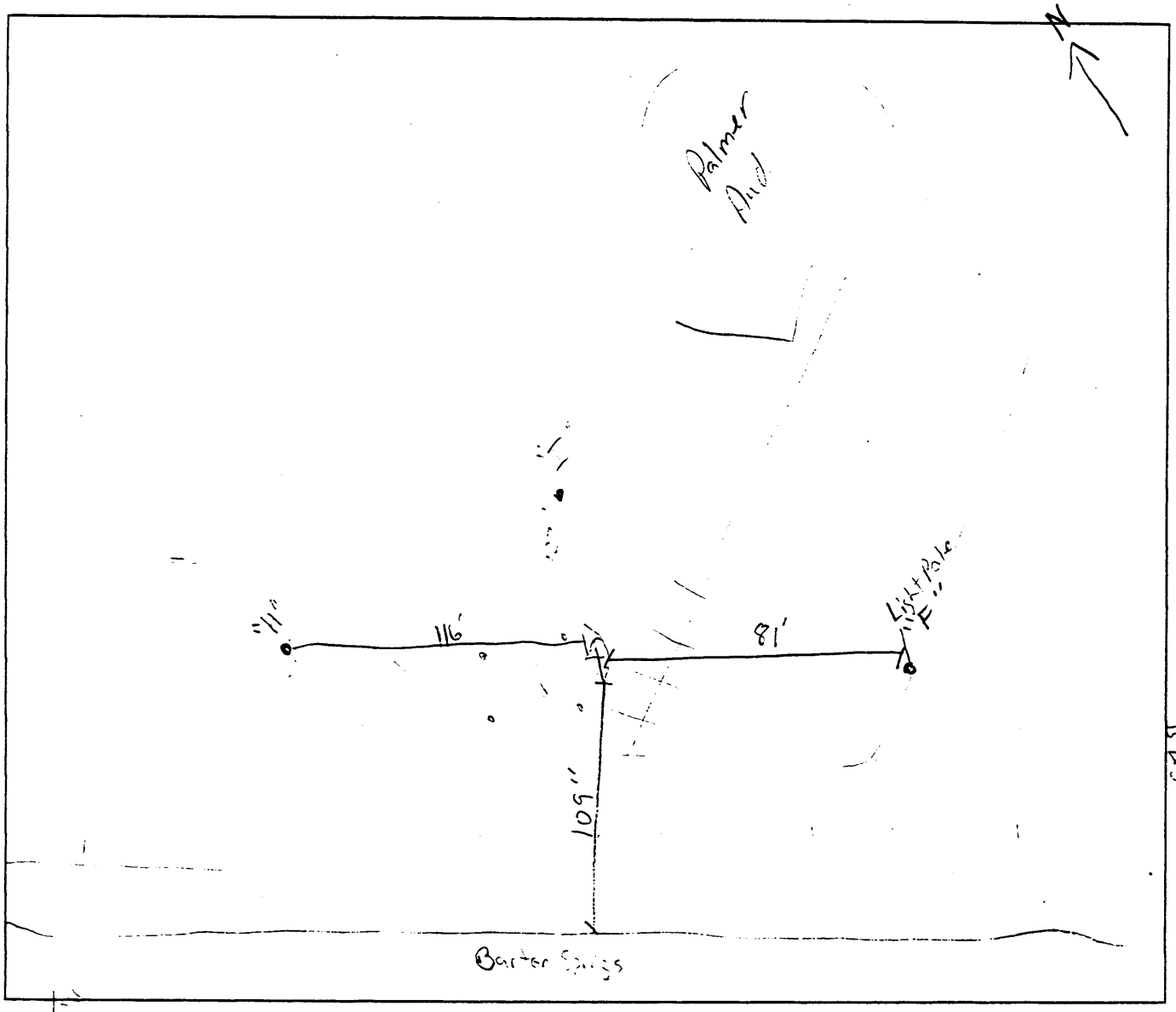
Lat: N 30° 15' 34.1"

Lon: W 97° 45' 07.8"

Elev: 491 ft

26:14

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 9 p1

Set: * 12/22/98 i / ___

Site Name: Palmer Auditorium ⊗3

Date / Time: 12/18/98 3:20 CST

Operator: ME

GPS Receiver Reading at Site:

Time Read 3:26 CST

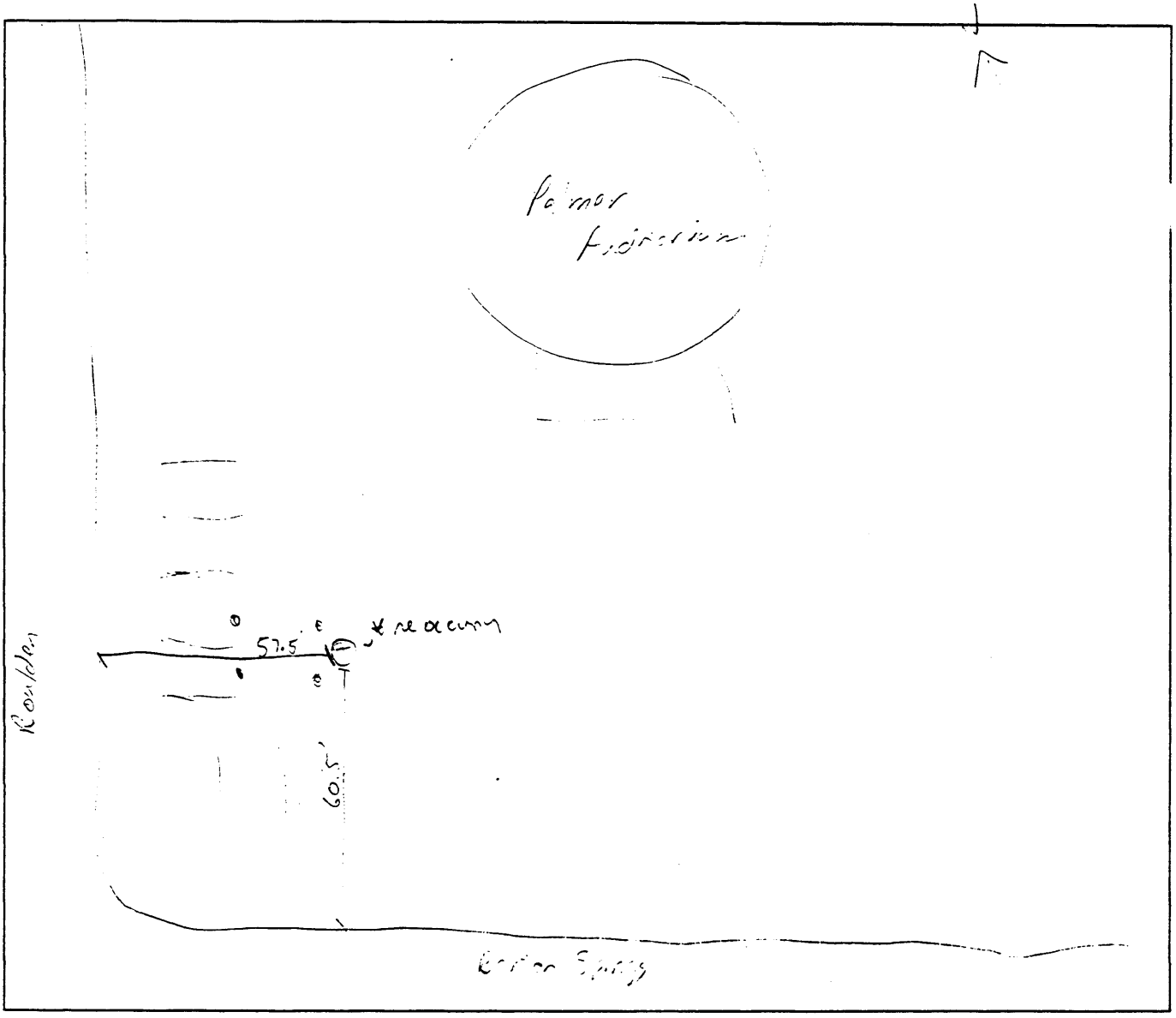
Lat: 30° 16' 35.1"

Lon: W097° 44' 5"

Elev: 532.2

3:30:03

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 10 p1

Set: 1/1

Site Name: TxDOT

Date / Time: 12/23/98 12:23 CST

Operator: Dan

GPS Receiver Reading at Site:

Time Read 11:30 CST

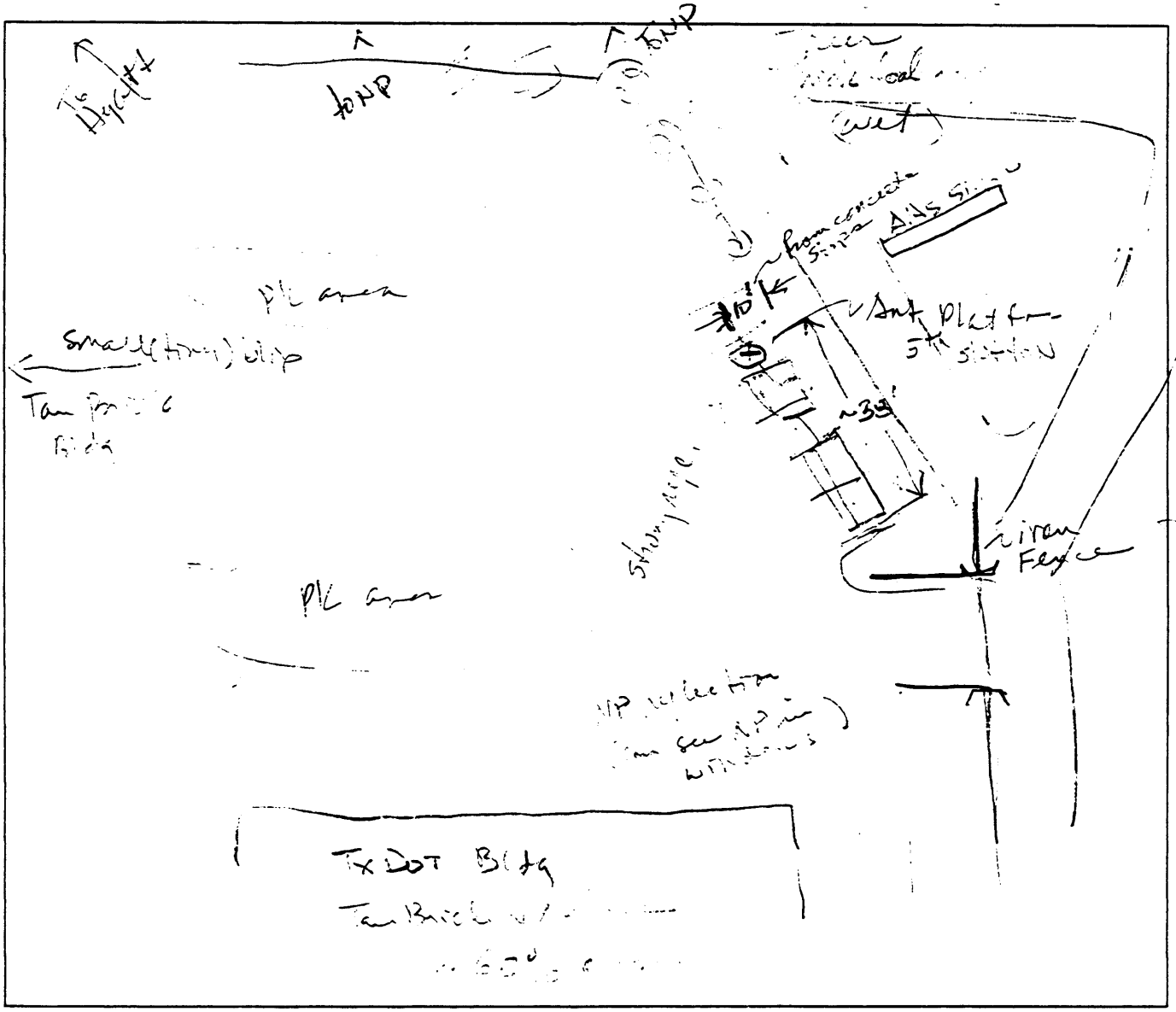
GPS 19:30:00

Lat: N 30° 15' 23.3"

Lon: W 97 44 37.8

Elev: 433'

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 11 p1

Set: 1 /

Site Name: 3rd & Jewell

Date / Time: 12/28/98 10:38A CST

Operator:

GPS Receiver Reading at Site:

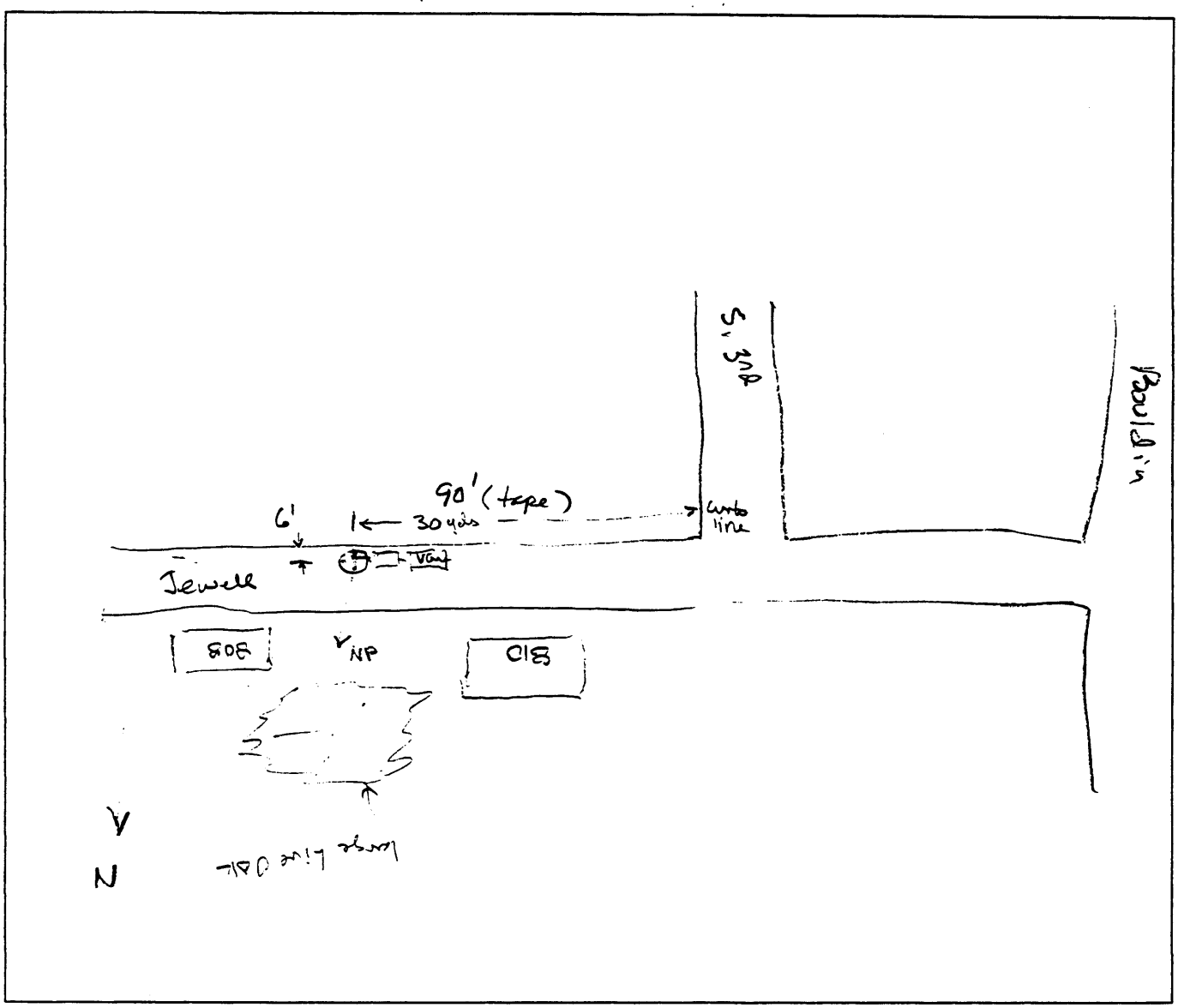
Time Read 10:39A CST
16:38:58

Lat: N 30 15 06.0

Lon: W 97 45 27.3

Elev: 352'

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

3rd & Christopher ~~Columbus~~

Rx Site No. 12 p1

Set: 1 / 1

Site Name: 3rd & Christopher ~~Columbus~~

Date / Time: 12/28/98 12:12p CST

Operator: Dan / MWH

GPS Receiver Reading at Site:

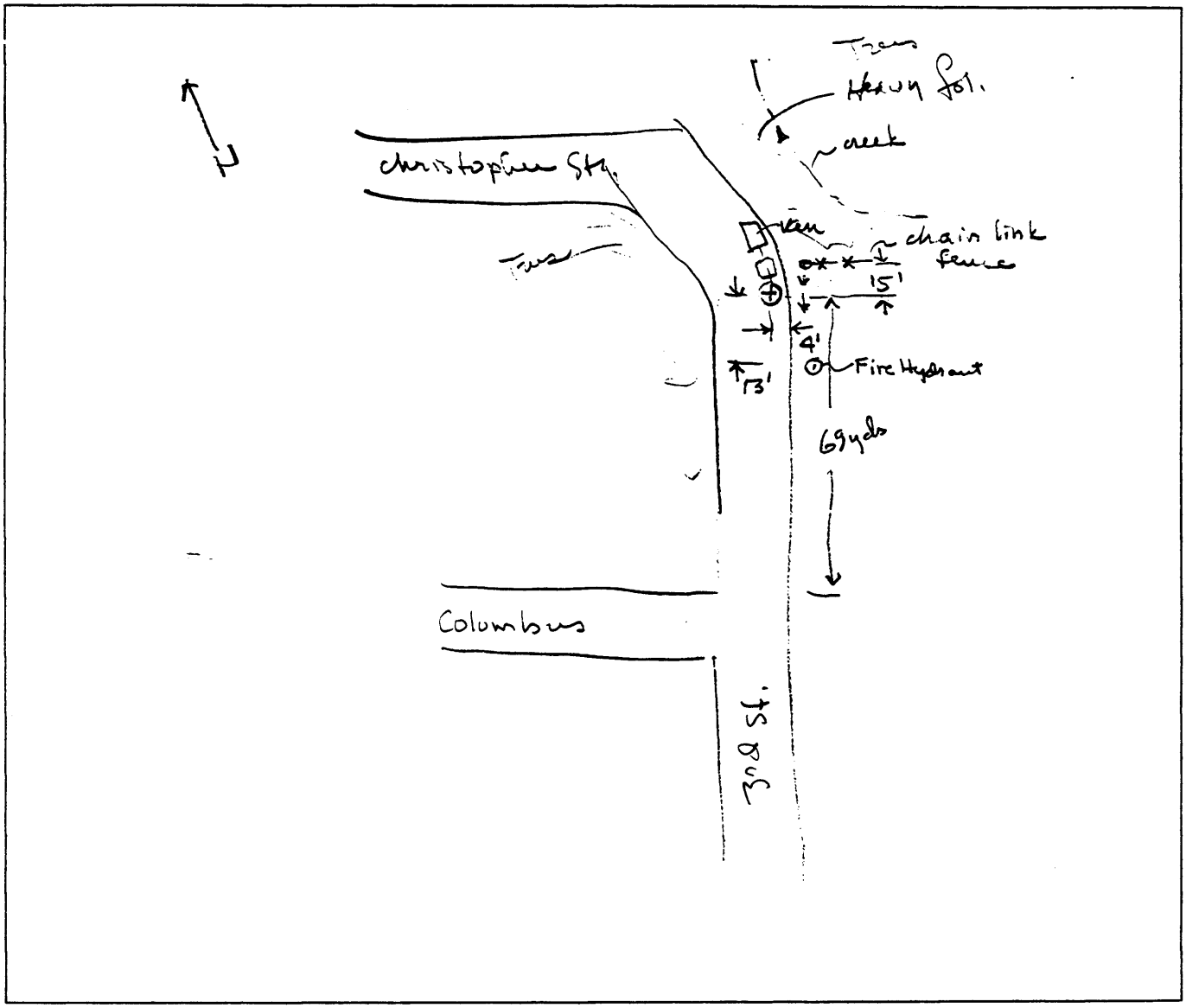
Time Read 18:12:00 CST
12:12 p

Lat: N 30 15 17.3

Lon: W 97 45 17.8

Elev: 654

Map Sketch (show street reference and local benchmark features):



Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 13 (13a p1)
Set: 1/1

Site Name: B. Creek Mall

Date / Time: 12/28/98 1:00p CST

Operator: ~~Dan~~ / MJH / ME

GPS Receiver Reading at Site:

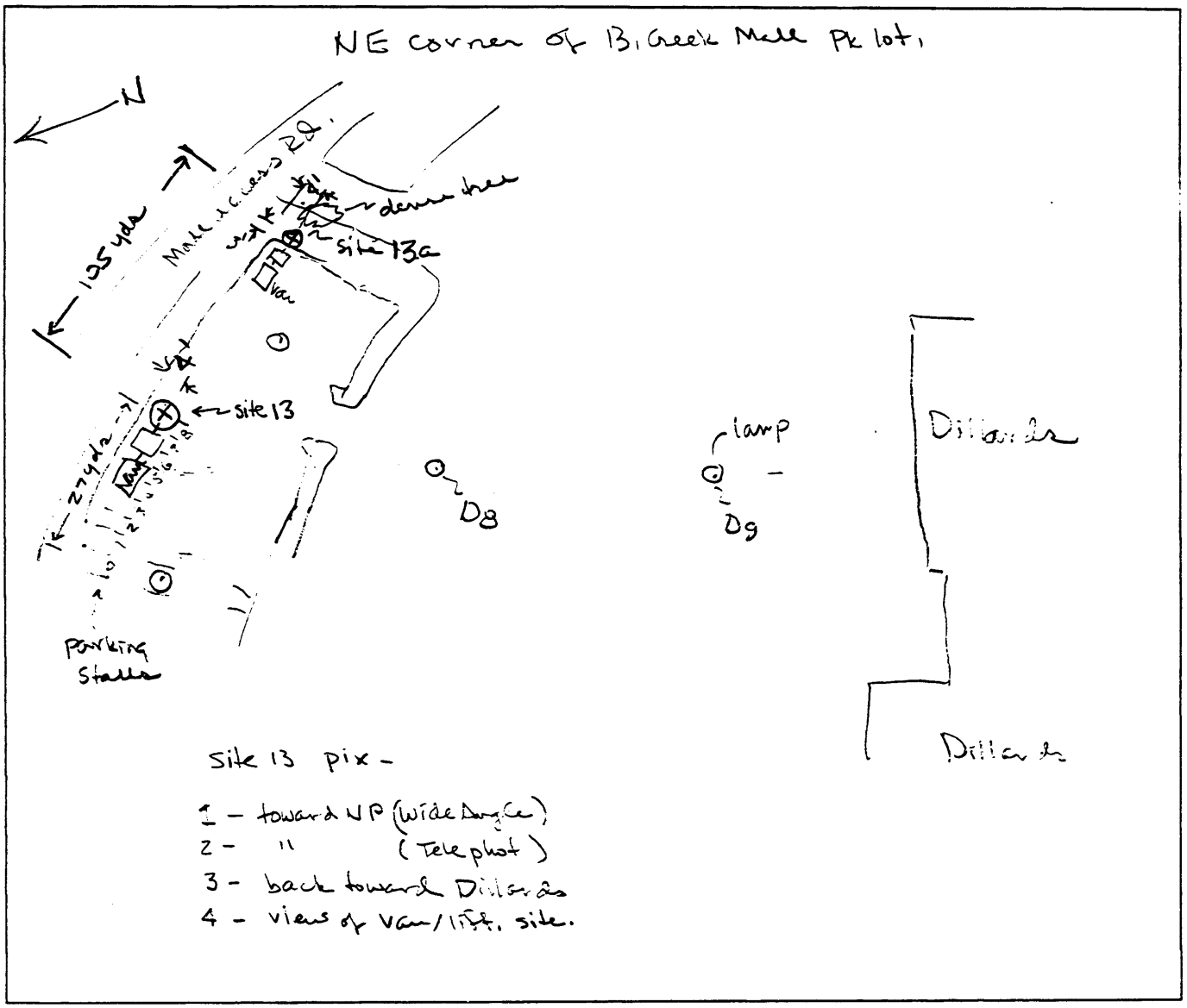
Time Read 1:05p CST
19:05:00

Lat: N 30 15 30.8

Lon: W 97 48 11.3

Elev: 993'

Map Sketch (show street reference and local benchmark features):



Site 13 pix -

1 - toward NP (Wide Angle)
2 - " (Telephot)
3 - back toward Dillards
4 - views of Van / lift. side.

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

Rx Site No. 13a p1

Set: 1 / ___

Site Name: B. Creek Mall – a

Date / Time: 12 / 23 / 98 1 : 30p CST

Operator:

GPS Receiver Reading at Site:

Time Read 1:42p CST

19:42:00

Lat: N 30 15 27.8

Lon: W 97 48 10.4

Elev: 951

Map Sketch (show street reference and local benchmark features):

Refer to site 13 map.

site 13a pix –

1 – toward NP (w. Angle)
2 – " " (telephoto)
3 – view of van toward NP.
4 – views back toward Foleys & Dillards.

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Location Log

See 13a log

Rx Site No. 13a-2 p1

Set: ___/___

Site Name: BCWall -a

Date / Time: 12/30/98 1043 CST

Operator: DW/NH/ME

GPS Receiver Reading at Site:

Time Read _____CST

Lat: _____

Lon: _____

Elev: _____

Map Sketch (show street reference and local benchmark features):

Refer to 13 & 13a plat.