# WASTEWATER SYSTEM IMPROVEMENTS
# FOR THE
# GRAND STRAND WATER AND SEWER AUTHORITY

## CENTRAL WASTEWATER TREATMENT SYSTEM

PART 1 TRANSMISSION PIPELINES

PROJECT NO. CA68505.71

EPA NO. C450381-05

ADDENDUM # 2 - Supplement for Rebid

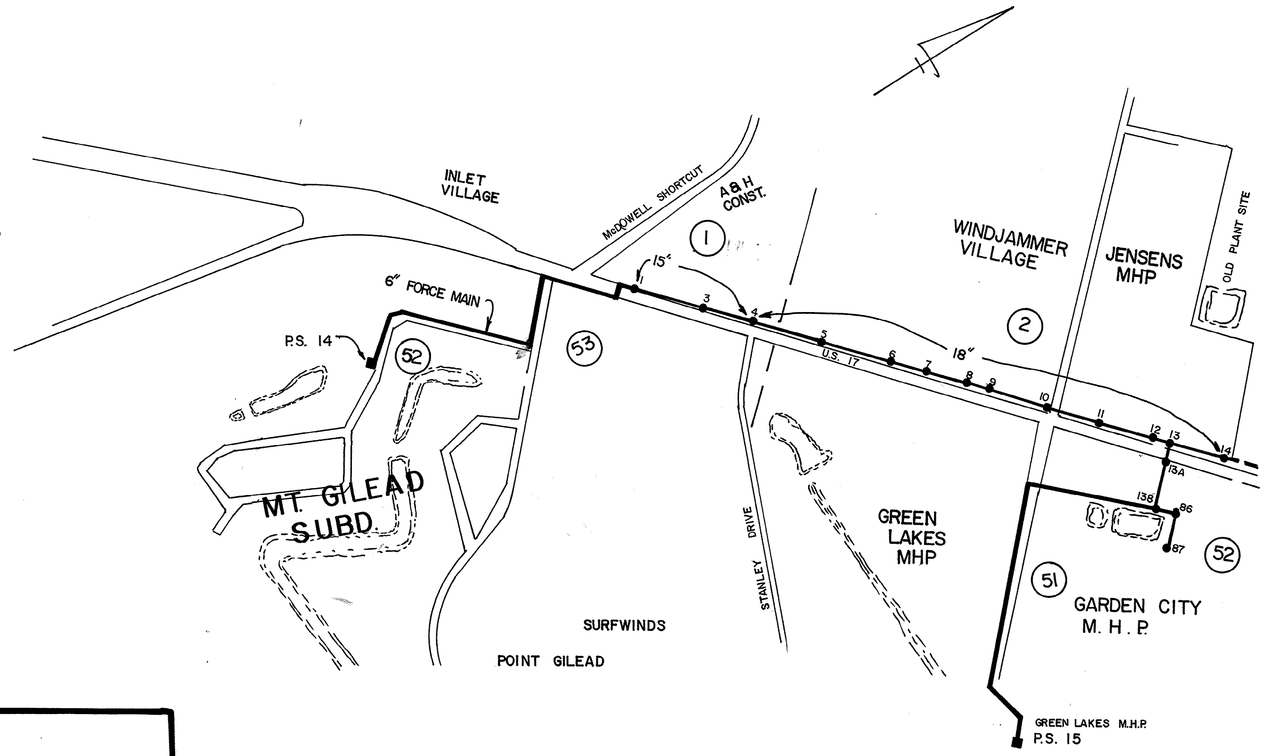
B,C&E/CH2M HILL

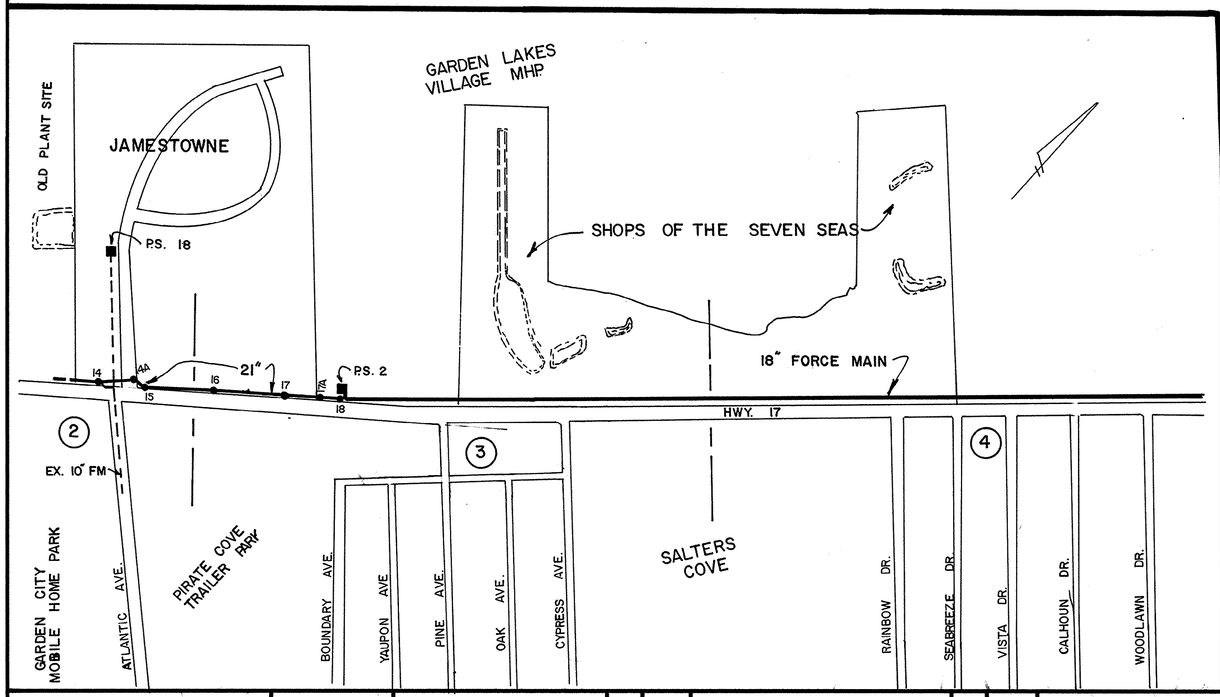
GAINESVILLE FLORIDA
COLUMBIA SOUTH CAROLINA

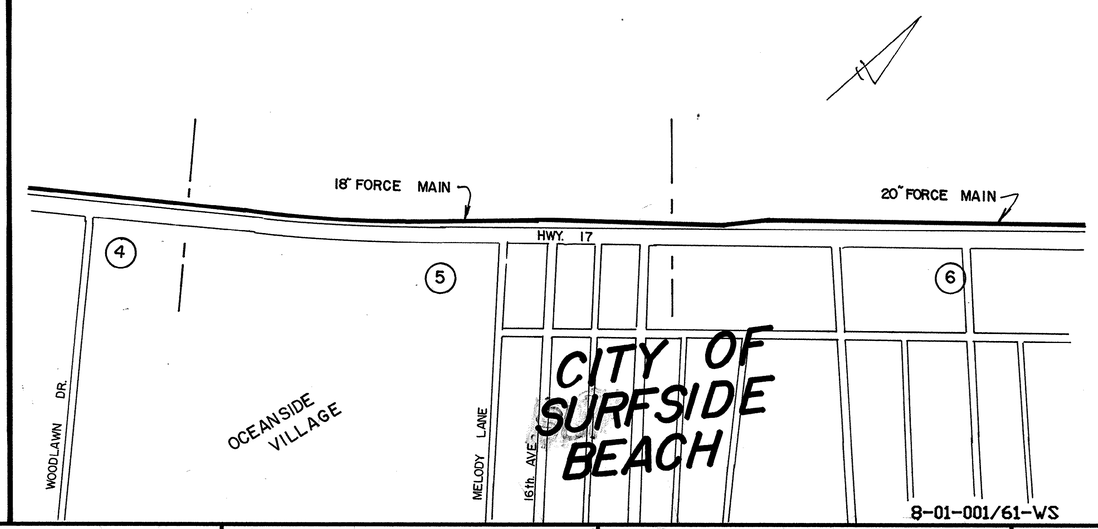
RECORD DRAWING

8-01-061 -ws

GEORGETOWN COUNTY THIS AREA




8-01-001/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

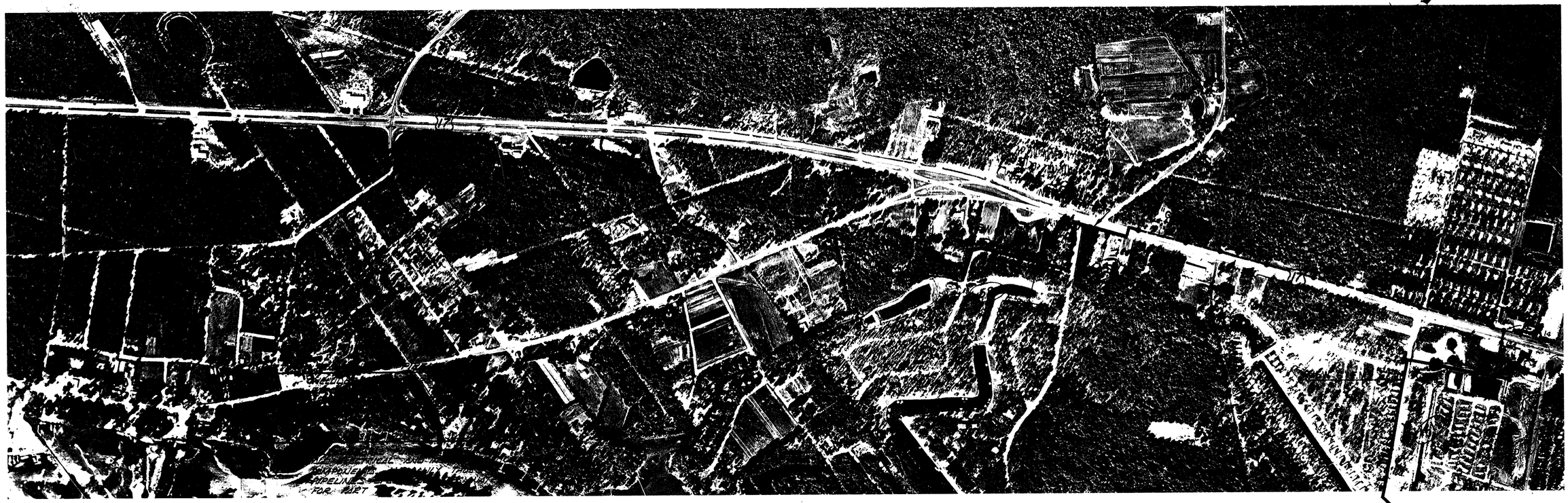
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

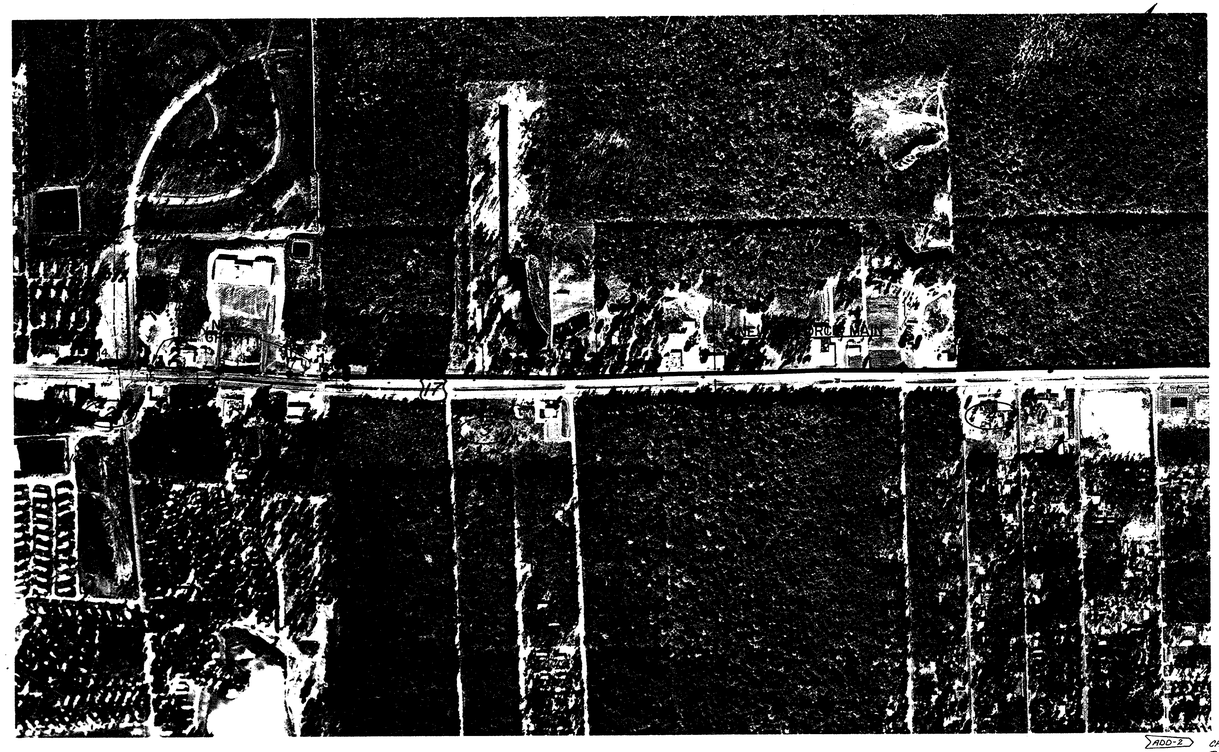
GRAND STRAND WATER & SEWER AUTHORITY

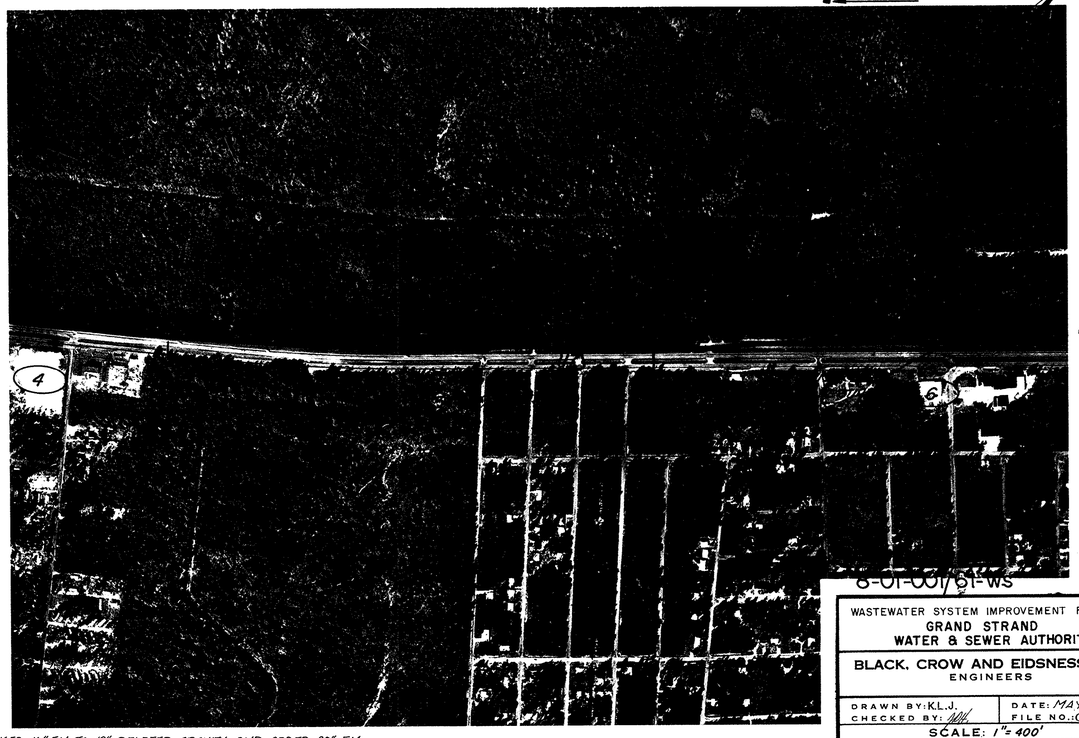
201 SEWER SYSTEM

LOCATION MAP ALONG U.S. HWY. 17

SHEET A-1
OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05




8-01-001/61-WS

ADD-2

CHANGED 16" F.M. TO 18" DELETED GRAVITY AND ADDED 20" F.M. RELOCATED U.S. HWY 17 CROSSING NEAR M.H. 14 TO M.H. 13. DELETE HWY CROSSING AT MH 17. DELETE REFERENCE TO PART 2 CONTRACTOR FOR 10" F.M. CONNECTION NEAR MH 14.

5 SHEET No.

| NO. | DESCRIPTION | DATE |
|---|---|---|
| ADD-2 | SEE NOTE | 2-1-79 |

REVISIONS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: | FILE NO.: CA 68505.71

SCALE: 1" = 400'

LOCATION MAP

SHEET NO. A-1

C 450381-05

CAROPINES

GLENNS BAY ROAD

RETREAT AT GLENNS BAY

SURFSIDE SHOPPING CENTER

DEERFIELD PLANTATION
PHASE TWO

DEERFIED PLANTATION
PHASE ONE

20" FORCE MAIN

20" FORCE MAIN

20" FORCE MAIN

HWY. 17

HWY. 544

KROGER

24" FORCE MAIN

P.S. 1

30"

30"

36"

21"

12" F.M.

8" FORCE MAIN

6" FORCE MAIN

OCEAN LAKES FAMILY CAMPGROUND

10" FORCE MAIN

MYRTLE BEACH RESORTS

CITY OF SURFSIDE BEACH

5th. AVE.

10th. AVE.

17th. AVE

P.S. 17

P.S. 16

6 7 8 9 16 51 10

40 40A 40B 41 42 43 44 45 46 82 55 55A 56 57 58

CRYSTAL LAKES M.H.P.

P.S. 5

OLD PLANT

6" FORCE MAIN

50

MYRTLE BEACH AIR FORCE BASE HOUSING

HUNTERS LANDING

CROMERS

8" FORCE MAIN

BEACHWOOD MHP

TADS

P.S. 6

10" FORCE MAIN

12" FORCE MAIN

WINGS PLAZA SOUTH

6" FORCE MAIN

HWY. 17

14 13 12 11 10 49 50

MYRTLE BEACH RESORTS

LAKEWOOD CAMPGROUND

OLD PLANT

MAGIC HARBOR FAMILY PARK

PIRATELAND CAMPGROUND

PL-1

PL-2

PL-3

P.S. 4

OLD PLANT

6" FORCE MAIN

LONG BAY ESTATES

MYRTE BEACH STATE PARK

OLD PLANT

6" FORCE MAIN

88 89 90 91

8-01-002/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

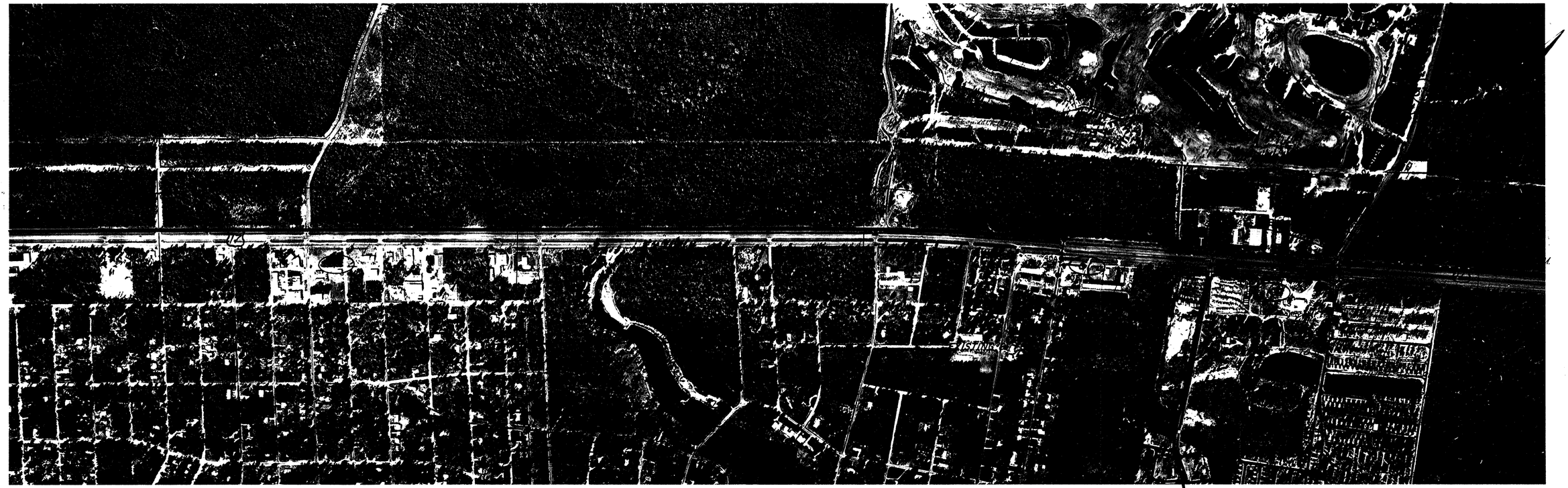
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

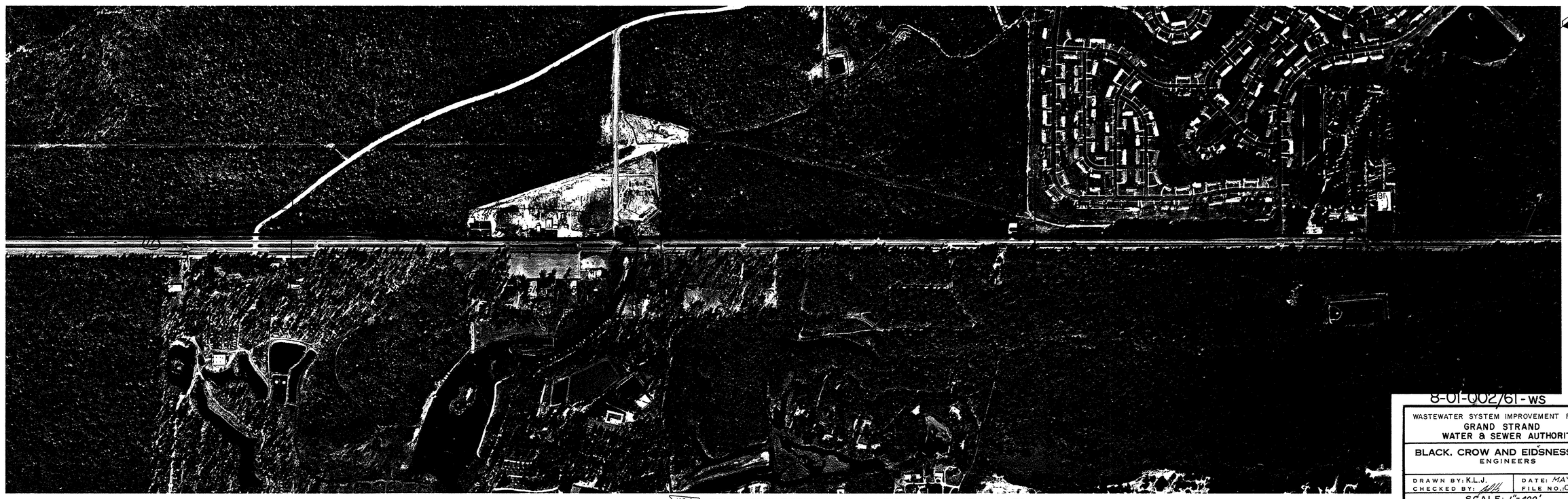
GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

LOCATION MAP ALONG U.S. HWY. 17

SHEET A-2
OF
DATE May-78
Traced 01-86
CA 68505.71
C 450381-05



ADD-2 REMOVE GRAVITY THROUGH MH 40 AND REPLACE WITH 20" F.M. DELETE GRAVITY THROUGH M.H. U" 35 AND REPLACE WITH 12" F.M. CHANGE 10" F.M. TO 12" F.M. FROM CONJUNCTION WITH PIRATELAND 6" F.M. TO SOUTH. DELETE CROSSING AT MH U" 31A. DELETE "PART 2" NOTE AT MH 40A, 40B AND 82 AND AT 10" F.M. FROM RS U" 16.

(11) SHEET No.

| NO. | DESCRIPTION | DATE |
|---|---|---|
| ADD-2 | SEE NOTE | 2-1-79 |

REVISIONS

8-01-0027 61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

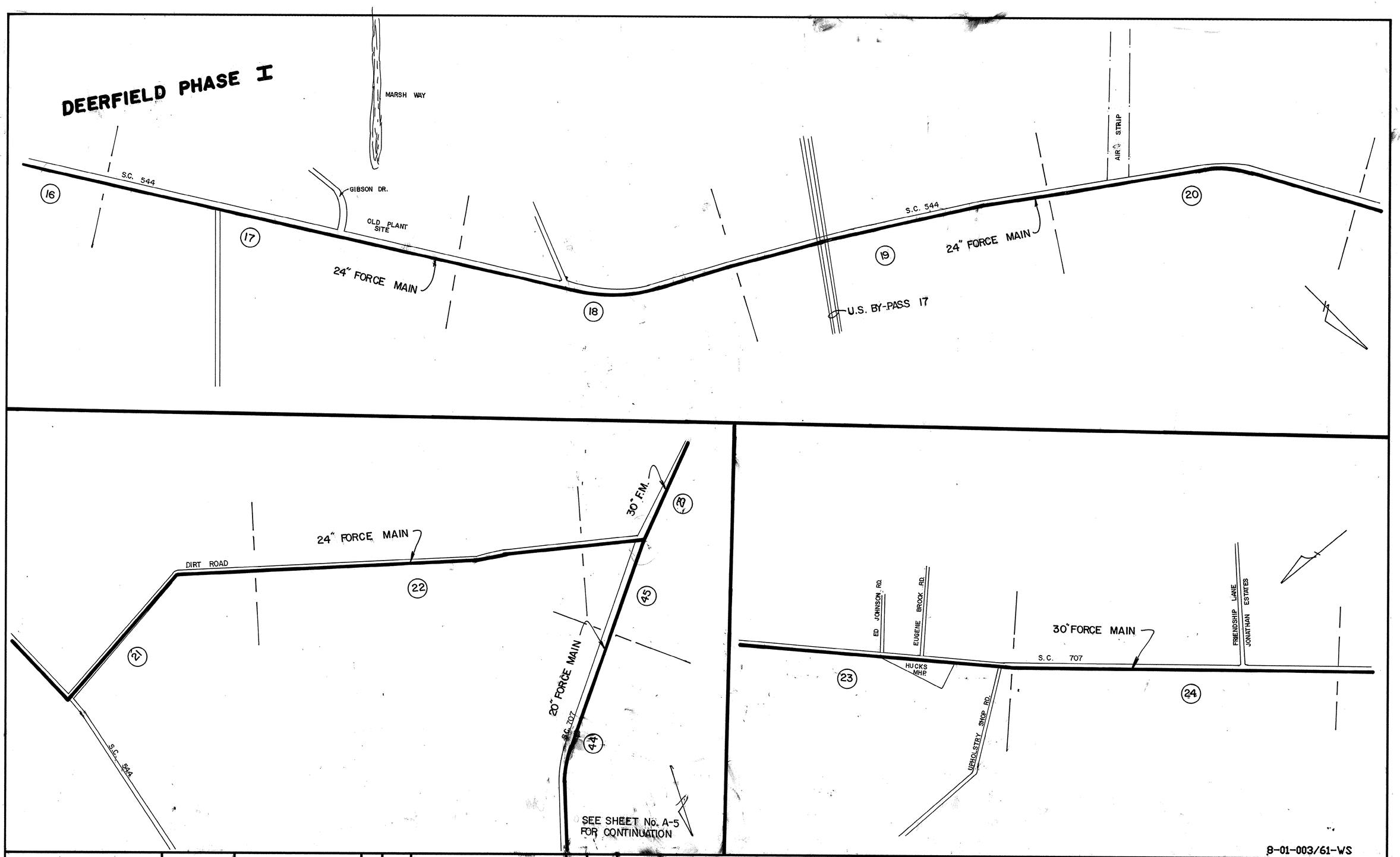
DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO. CA 68505.71
SCALE: 1"=400'

LOCATION MAP

SHEET NO. A-2

C 450381-05

# DEERFIELD PHASE I




8-01-003/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

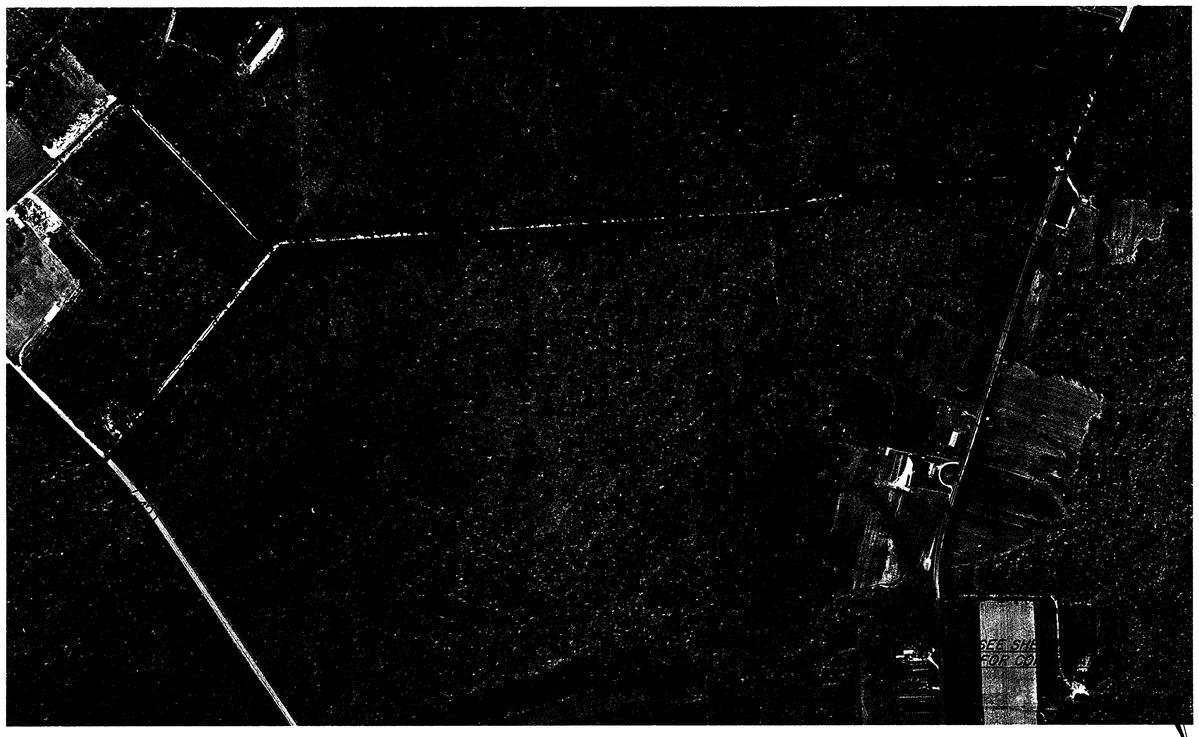
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

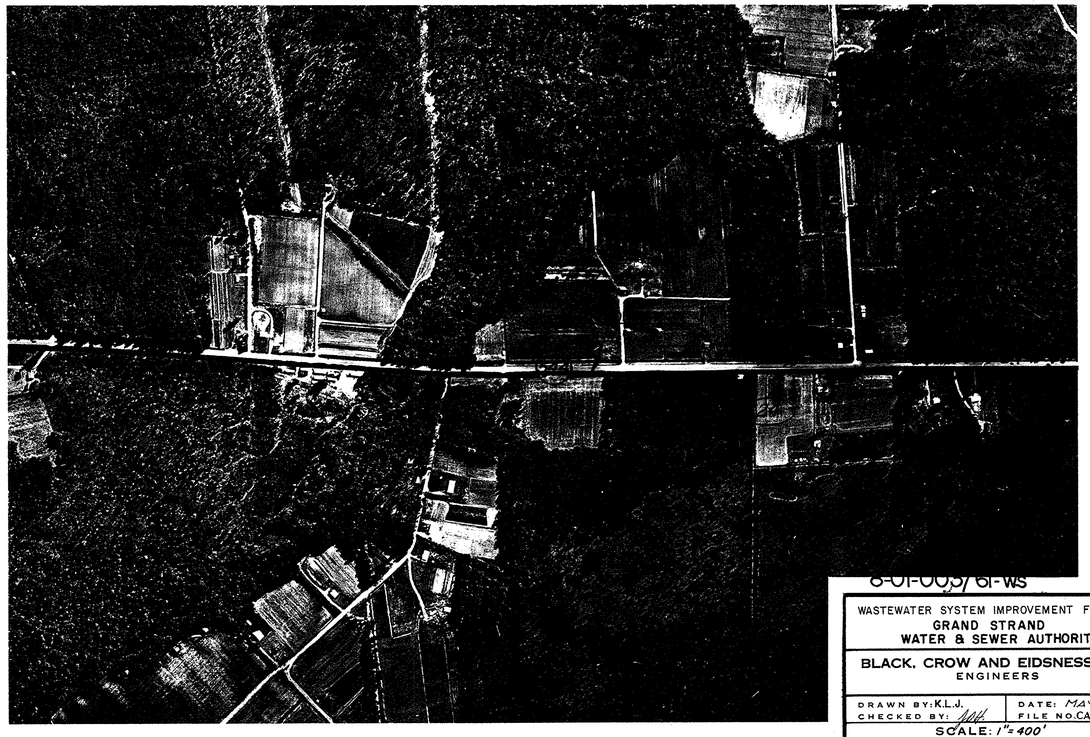
GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

LOCATION MAP
ALONG 544 TO HWY. 707

SHEET OF A-3
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05





8-01-003/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO. CA 68505.71

SCALE: 1"=400'

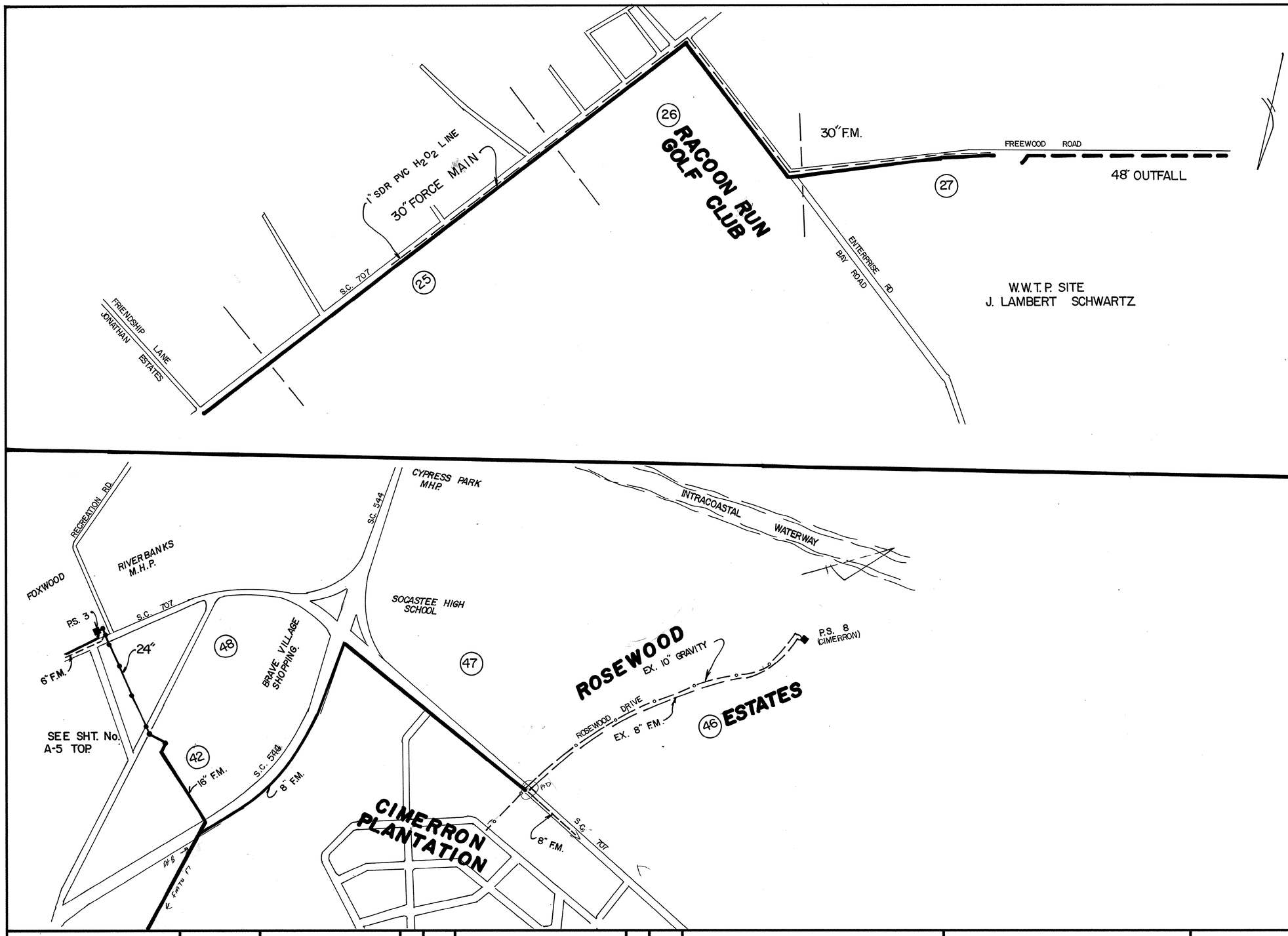
LOCATION MAP

SHEET NO. A-3

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |

24 SHEET No.

C 450381-05




8-01-004/61-WS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | LOCATION MAP ALONG 544 TO HWY. 707 | SHEET OF A-4<br>DATE May—78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |

PART 1 : TRANSMISSION PIPELINES

INCLUDES ALL SEWERS AND FORCEMAINS EXCEPT THOSE SPECIFICALLY DESIGNATED AS PART OF PART 2 CONTRACT.

PART 2 : TRANSMISSION PUMPING STATIONS

INCLUDES ALL PUMPING STATIONS, ALL ELECTRICAL AND INSTRUMENTATION COMPONENTS, AND ONLY THOSE PIPELINES SPECIFICALLY DESIGNATED FOR PART 2.

ADD'A. CHANGE 8" F.M. TO PART 1

(26) SHEET No.

8-01-004/61-ws

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO.: CA 68505.71
SCALE: 1" = 400'

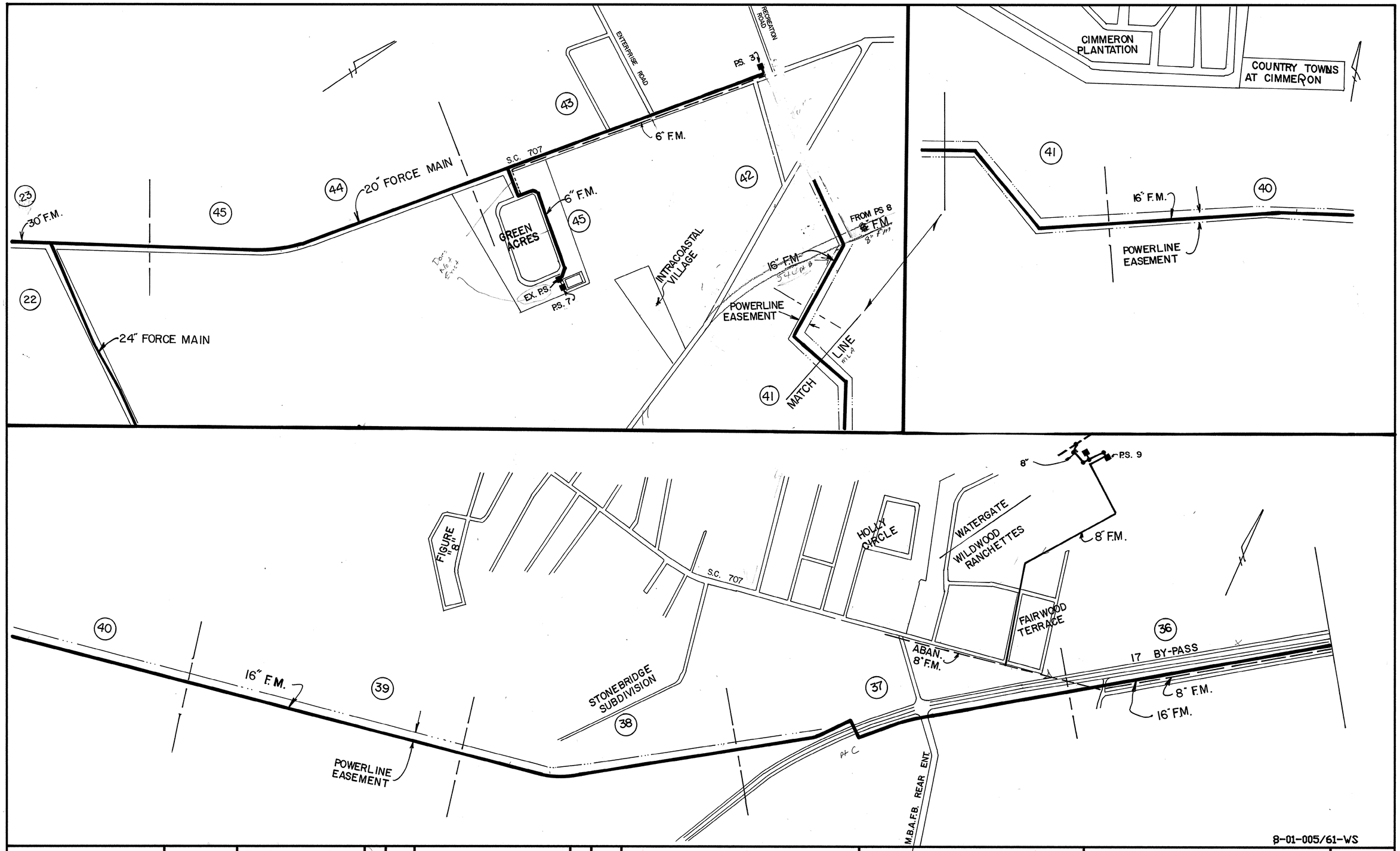
| NO. | DESCRIPTION | DATE |
|---|---|---|
| ADD'A. SEE NOTE | | 2-1-79 |

REVISIONS

LOCATION MAP

SHEET NO. A-4

C 450381-05




8-01-005/61-WS

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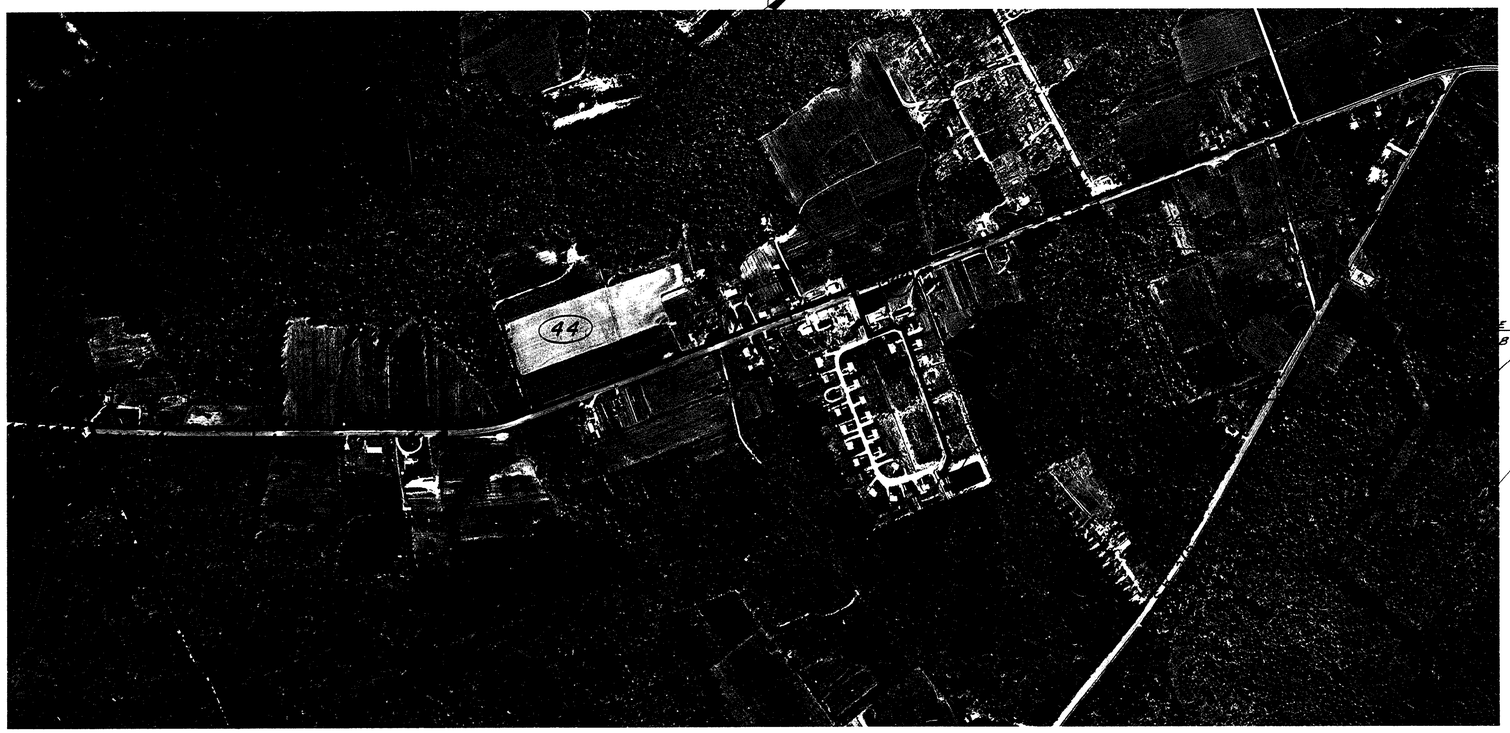
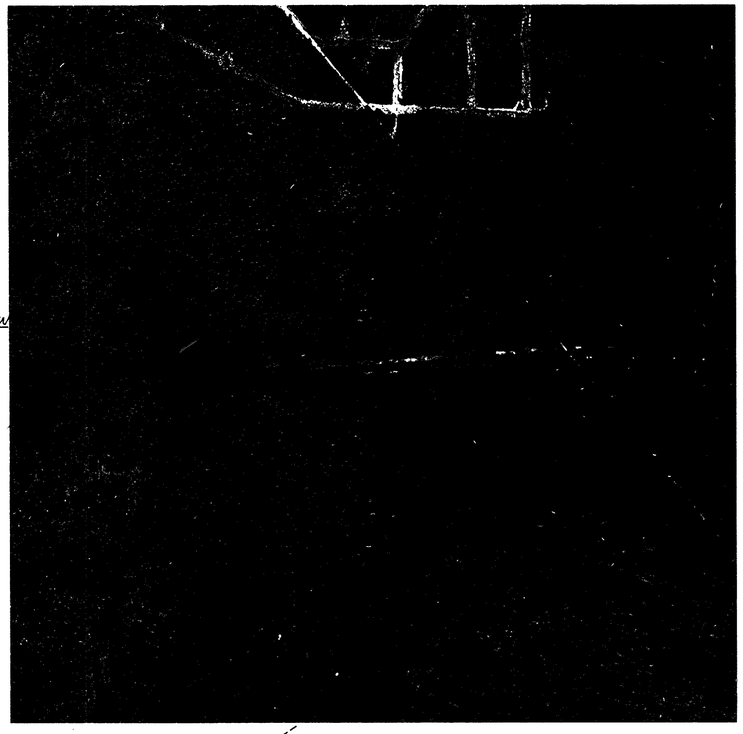
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | LOCATION MAP ALONG U. S. 707 | SHEET OF A-5<br>DATE May—78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |



E MAIN
B

NEW 8" GRAVITY SEWER (PART 2)

PS NO 9

ADD-2 8" F.M. - DELETE NOTE (PART 2)

8-01-005/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: | FILE NO.: CA 68505.71

SCALE: 1" = 400'

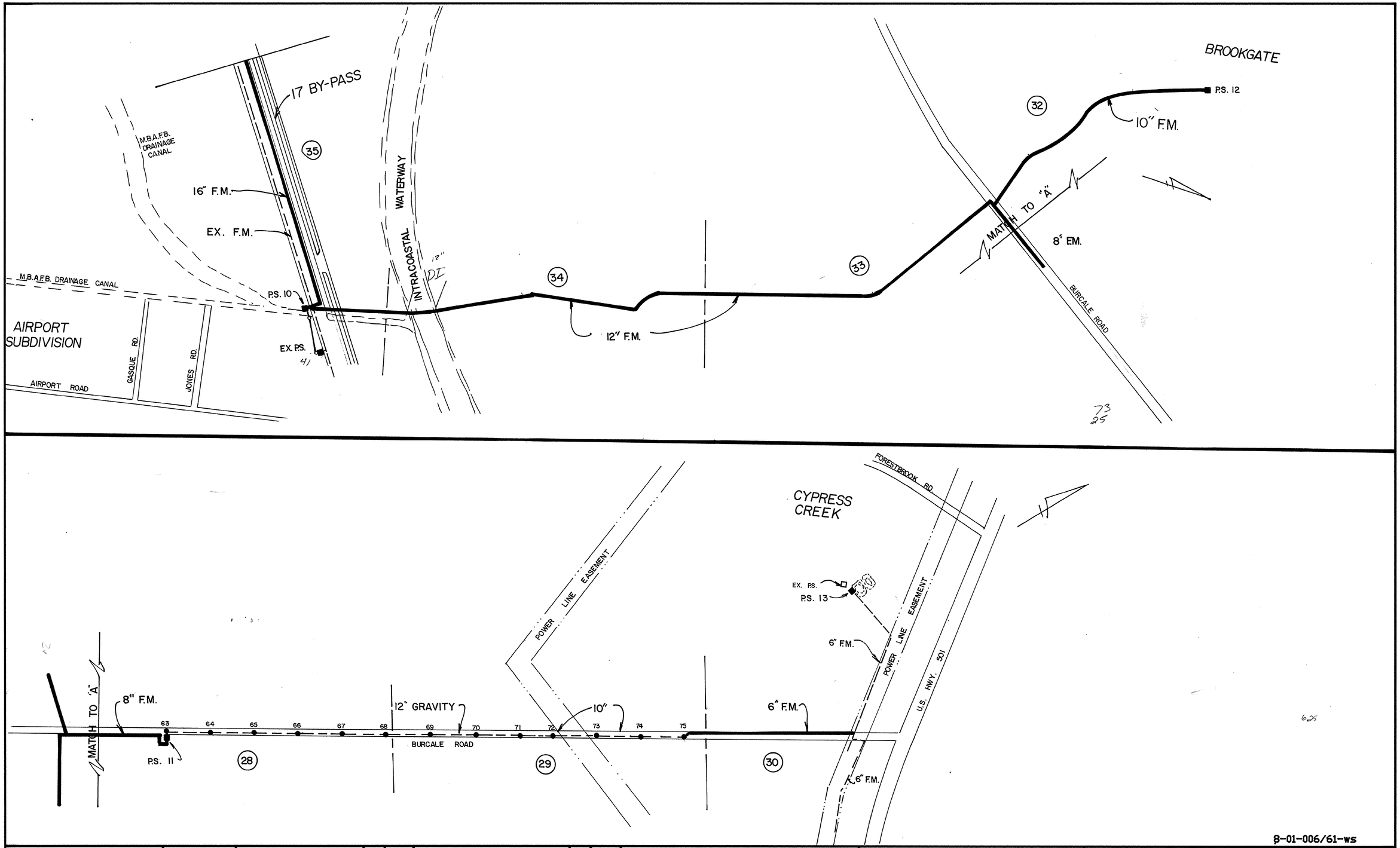
| NO. | DESCRIPTION | DATE |
|---|---|---|
| ADD 2 | SEE NOTE | 9-1-79 |

REVISIONS

LOCATION MAP

SHEET NO. A-5

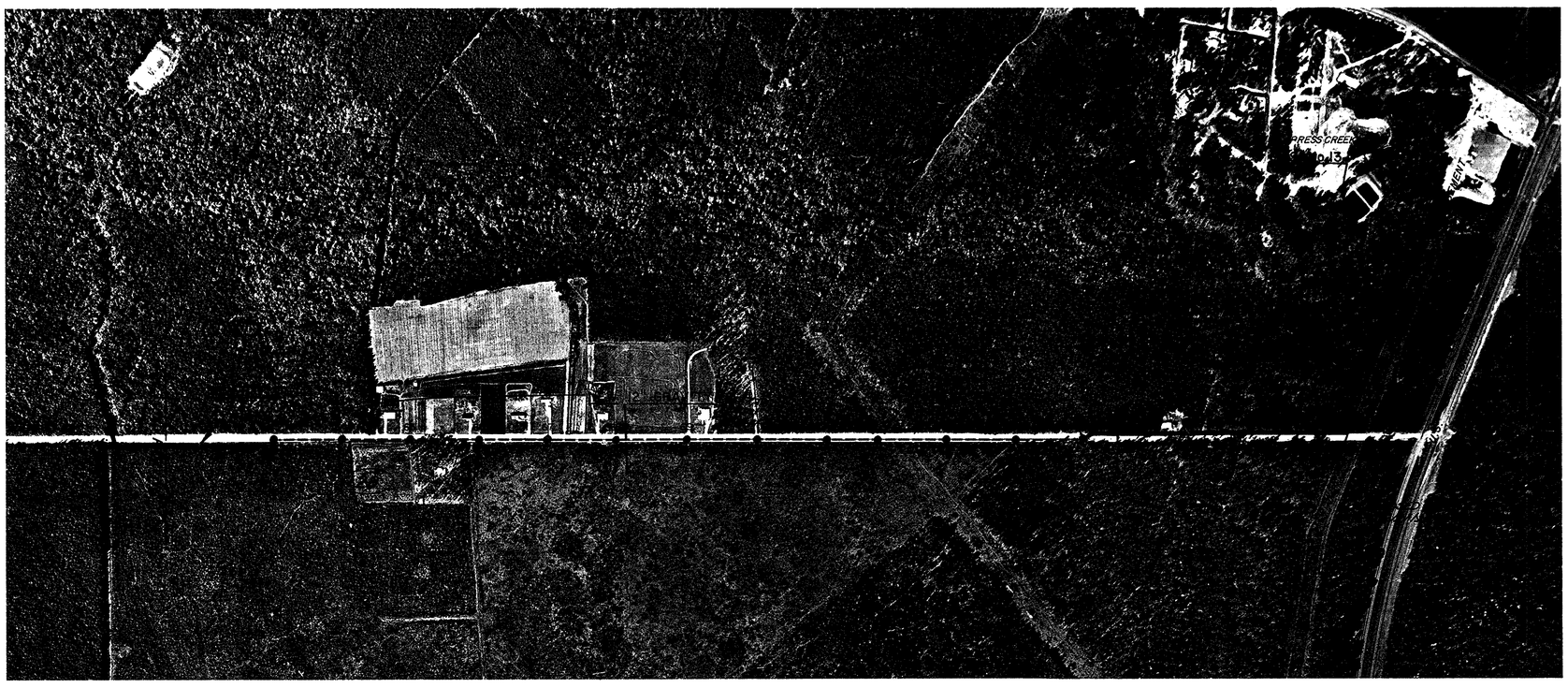
C 450381-05




8-01-006/61-ws

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | LOCATION MAP BURCALE TO FORESTBROOK |

SHEET OF A-6
DATE May—78
Traced 01-86
CA 68505.71
C 450381-05




PART 1 : TRANSMISSION PIPELINES

INCLUDES ALL SEWERS AND FORCEMAINS EXCEPT THOSE SPECIFICALLY DESIGNATED AS PART OF PART 2 CONTRACT.

PART 2 : TRANSMISSION PUMPING STATIONS

INCLUDES ALL PUMPING STATIONS, ALL ELECTRICAL AND INSTRUMENTATION COMPONENTS, AND ONLY THOSE PIPELINES SPECIFICALLY DESIGNATED FOR PART 2.

2 | SEE NOTE | 2-1-79
NO. | DESCRIPTION | DATE
REVISIONS

2 400-2 10" F.M.- DELETE REFERENCE (PART 2)

30 SHEET No.

8-01-006/.61 = WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

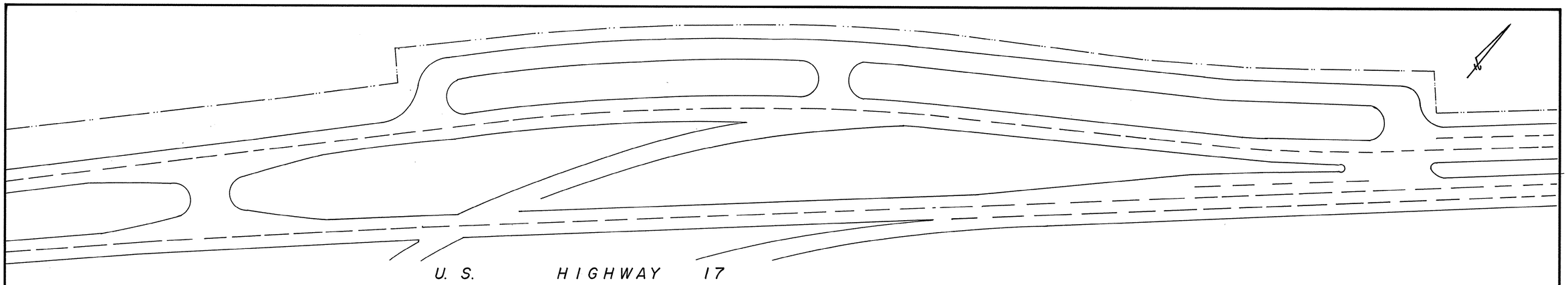
DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO.: CA 68505.71

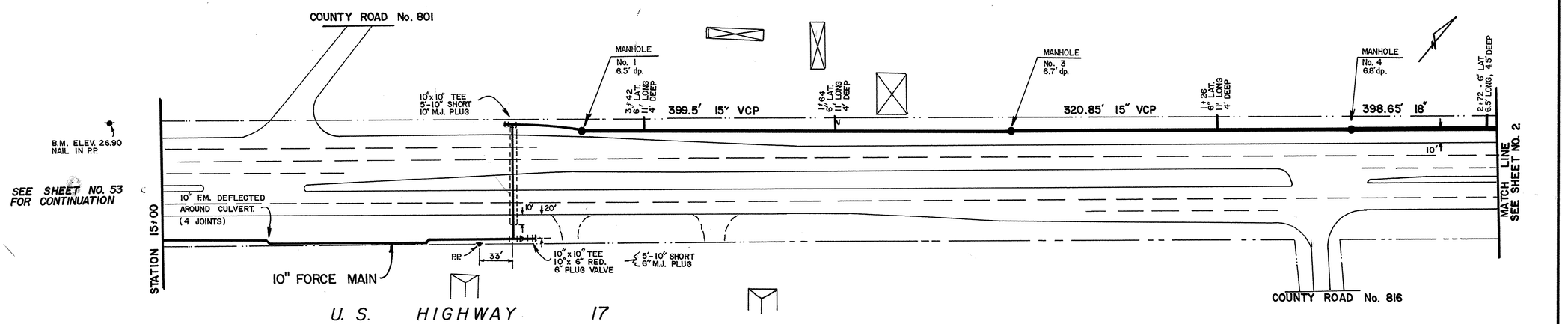
SCALE: 1" = 400'

LOCATION MAP

SHEET NO. A-6

C 450381-05




8-01-007/61-ws

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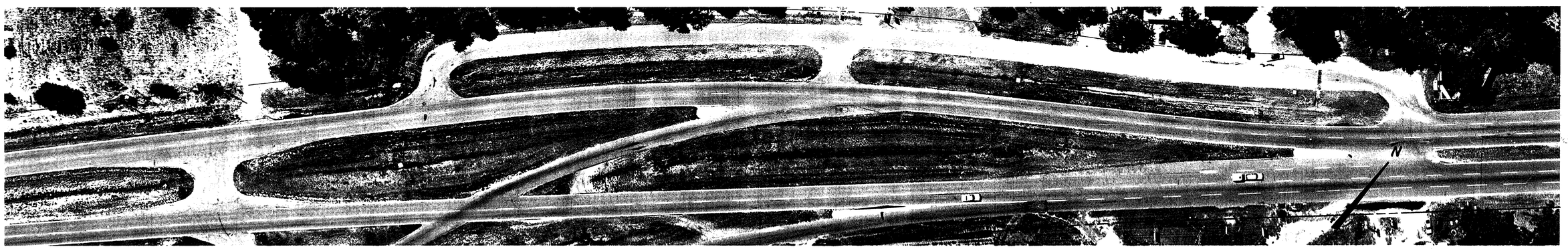
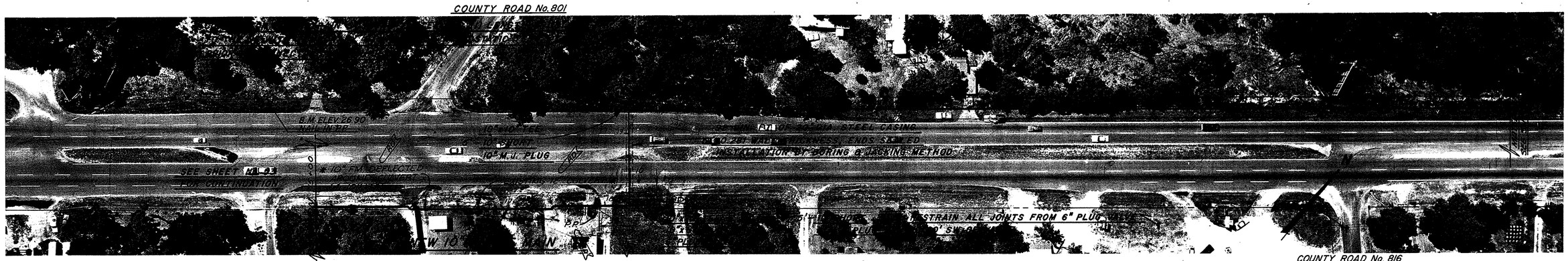
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 15" GRAVITY SEWER ALONG U.S. HWY. 17 | SHEET 1 OF<br>DATE May-78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |




U. S. HIGHWAY No. 17

NOTE: WHERE PIPELINES ARE SHOWN PARALLEL TO BUT CLEARLY OUTSIDE OF PAVED STREETS, CURBS AND SIDEWALKS THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING DAMAGE TO OR REPLACING THOSE FACILITIES AT HIS OWN EXPENSE. ALSO, CULVERTS, AND OTHER MINOR STRUCTURES SHALL BE REPLACED AT NO EXTRA COST. CONTRACTOR SHALL INCLUDE COST FOR ABOVE REPLACEMENT IN BID ITEMS FOR INSTALLING PIPE.

COUNTY ROAD No. 801




U. S. HIGHWAY No. 17




8-01-007/6-WS

**RECORD DRAWING**

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. DATE: MAY 78
CHECKED BY: FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

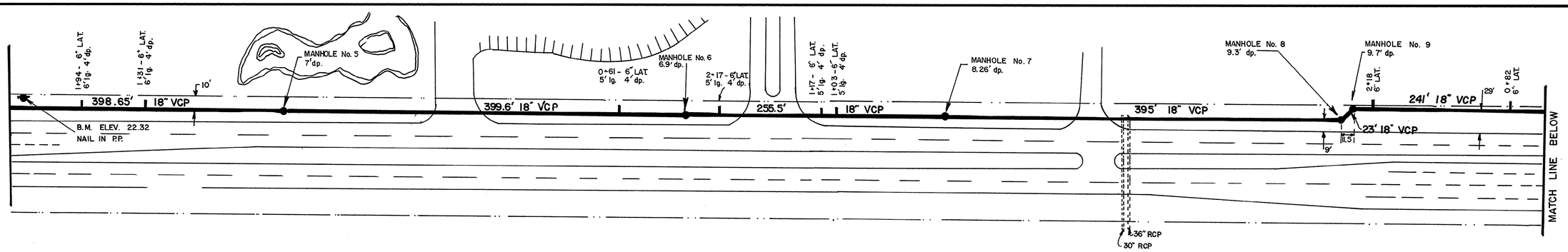
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | CHANGED CASING SIZE | 1/79 |
| RD | ADDED RECORD INFORMATION | 10-80 |

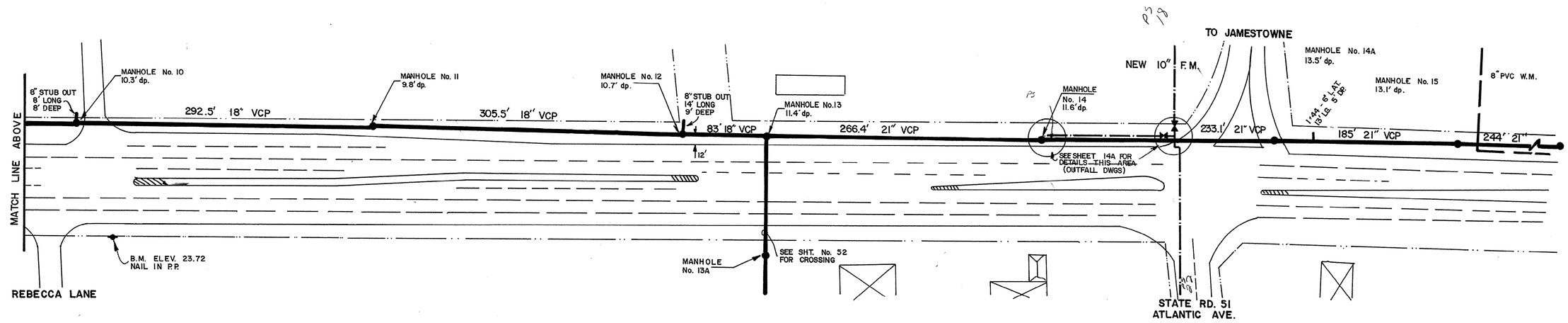
REVISIONS

NEW 15" V.C.P. GRAVITY SEWER ALONG U.S. HWY. No. 17

SHEET NO. 1

C 450381-05




8-01-008/61-ws

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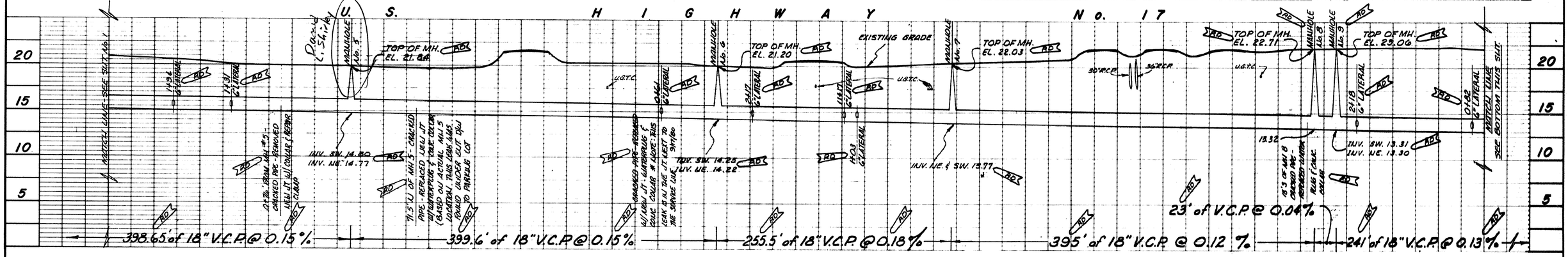
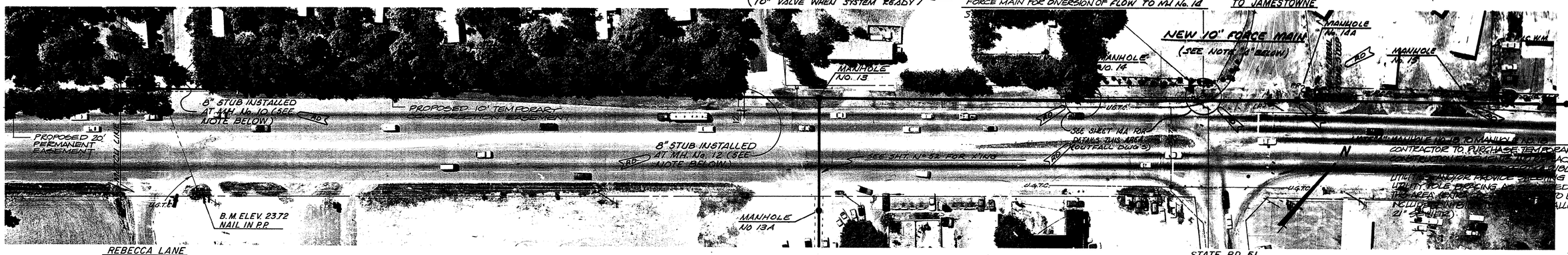
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 18" & 21" GRAVITY SEWER ALONG U.S. HWY. 17 | SHEET 2 OF<br>DATE May--78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |







RECORD DRAWING

8-01-008/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO.: CA 68505.11
SCALE: 1"=50' HORIZ. 1"=5' VERT.

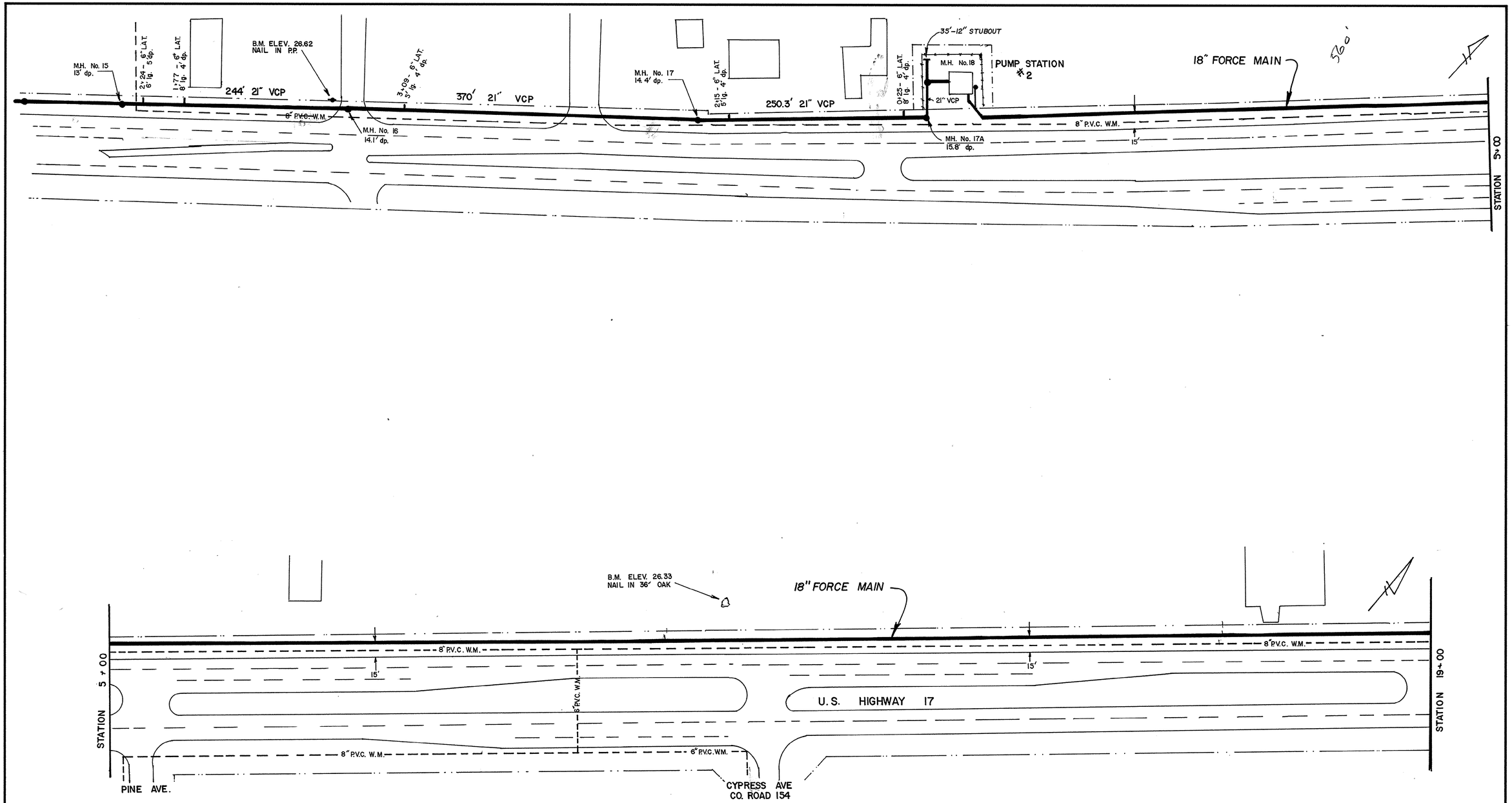
| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | V0-80 2-1-79 |
| 1&2 | SEE NOTE | |

REVISIONS

NEW 18" & 21" V.C.P. GRAVITY SEWER ALONG U.S. HWY. No. 17

SHEET NO: 2

C 450381-05




8-01-009/61-ws

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

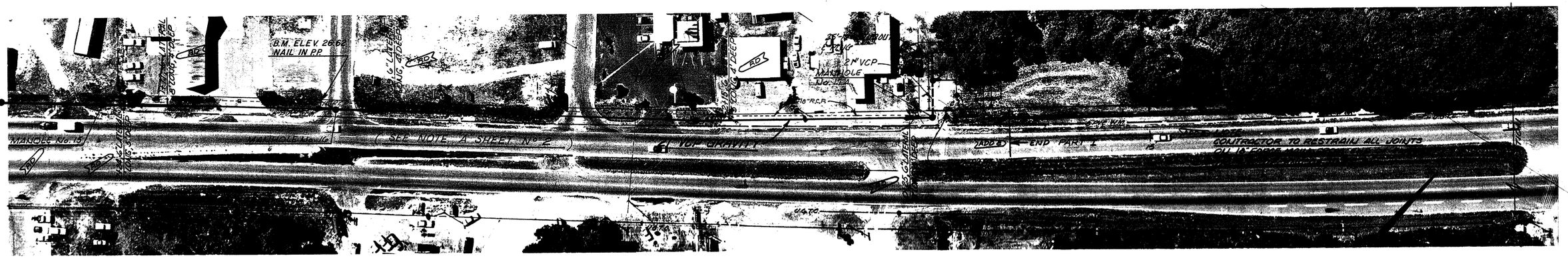
201 SEWER SYSTEM

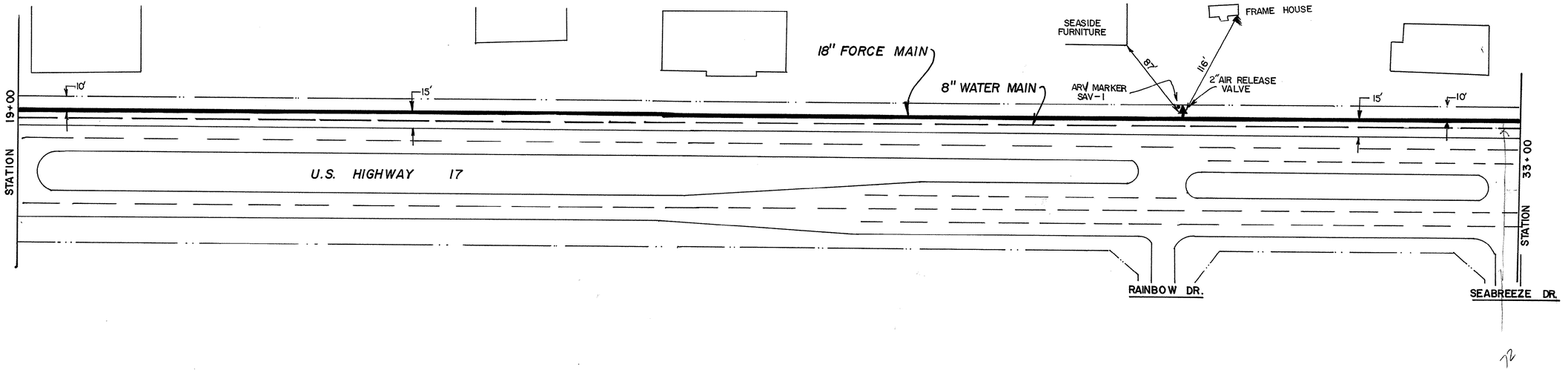
21" Gravity & 18" Force Main ALONG U.S. HWY. 17

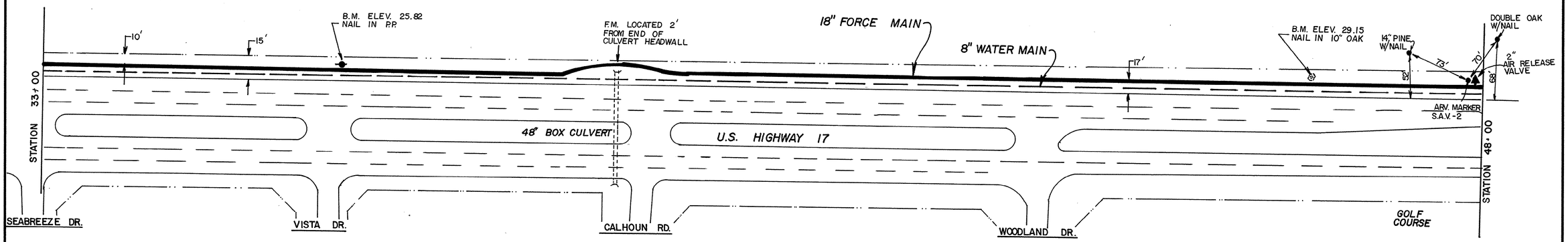
SHEET 3 OF

DATE May-78
Traced 01-86

CA 68505.71
C 450381-05


B.M. ELEV. 26.66
NAIL IN P.P.
MANHOLE No. 15
MANHOLE No. 16
( SEE NOTE A SHEET No. 2 )
MANHOLE No. 17
6" LATERAL 3' LONG, 4' DEEP
6" LATERAL 4' LONG, 4' DEEP
6" LATERAL 3' LONG, 4' DEEP
6" LATERAL 4' LONG, 4' DEEP
6" LATERAL 3' LONG, 4' DEEP
6" LATERAL 4




8-01-010/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

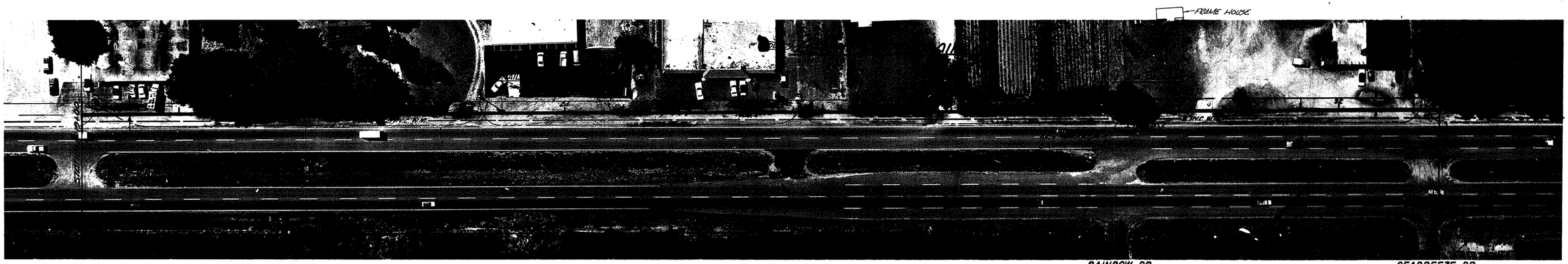
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

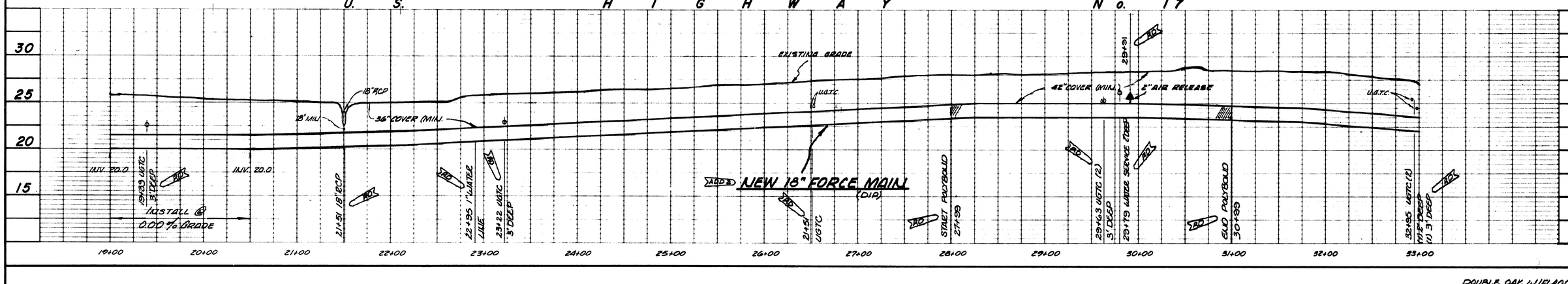
# 18" FORCE MAIN ALONG U.S. HWY 17

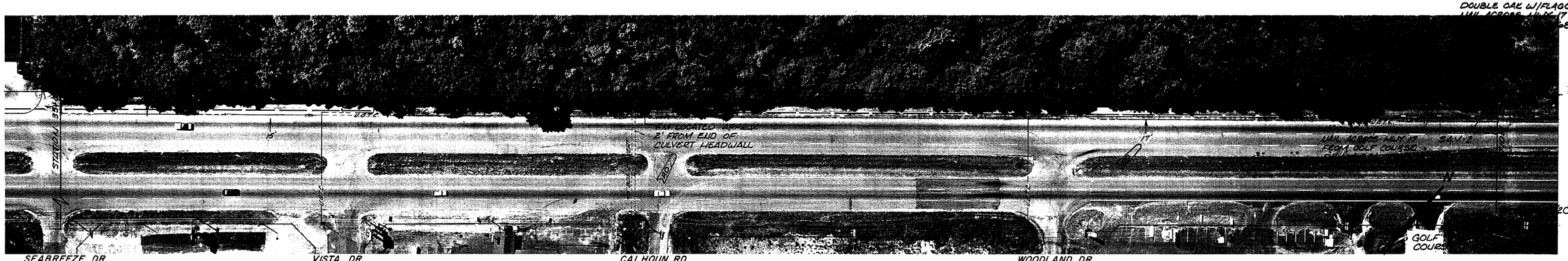
SHEET 4 OF
DATE May-78
Traced 01-86
CA 68505.71
C 450381-05




RAINBOW DR. — SEABREEZE DR.

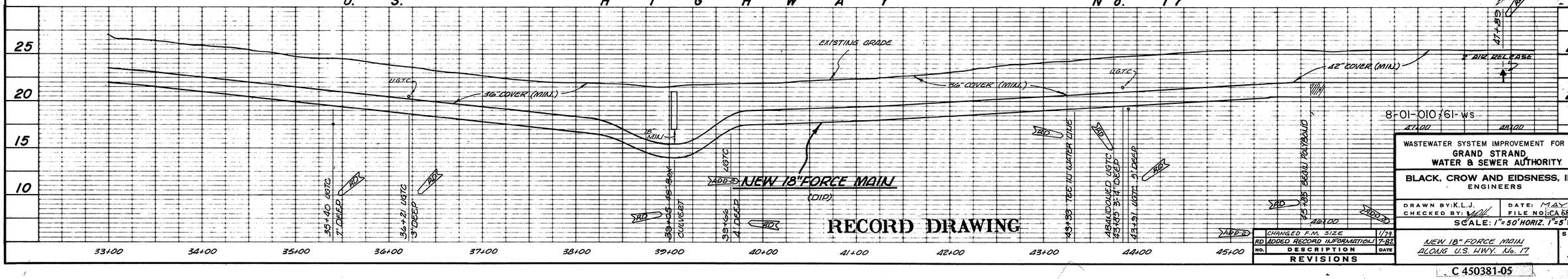
U. S. HIGHWAY No. 17




SEABREEZE DR. — VISTA DR. — CALHOUN RD. — WOODLAND DR.

U. S. HIGHWAY No. 17




8-01-010/61-ws

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: | FILE NO: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

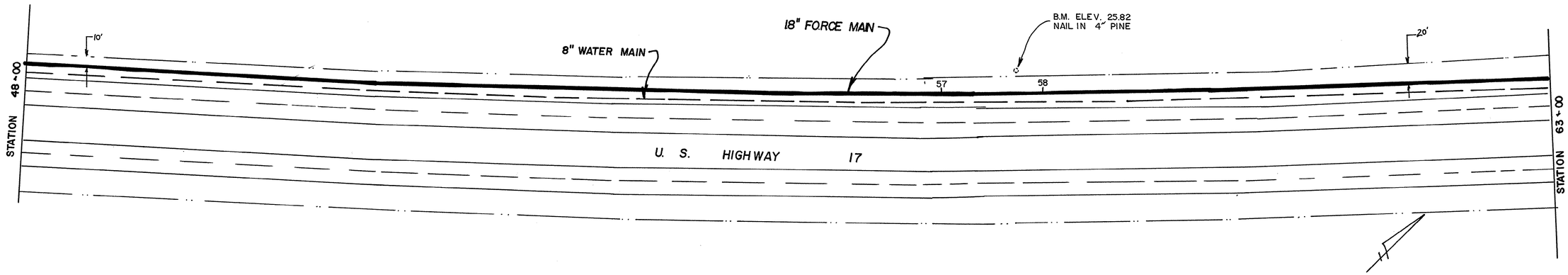
NEW 18" FORCE MAIN ALONG U.S. HWY. No. 17

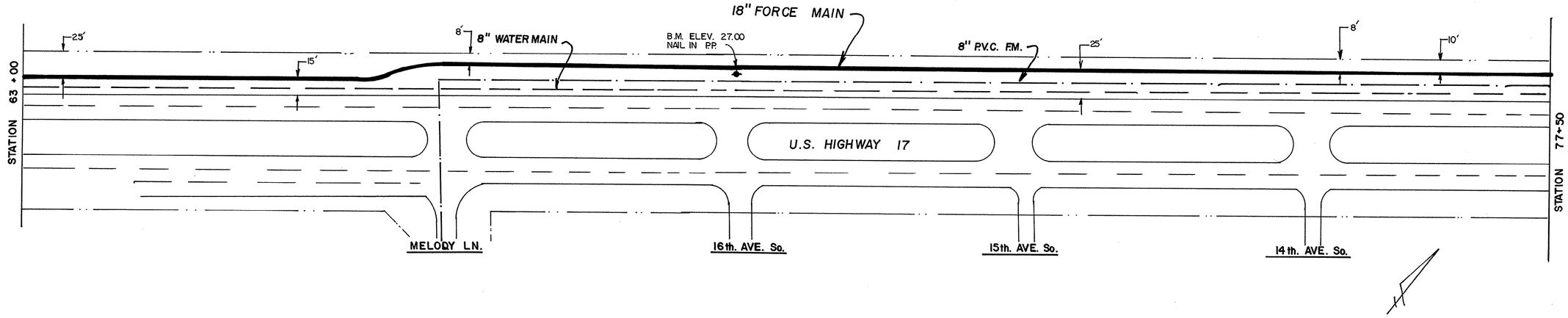
SHEET NO. 1

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | CHANGED F.M. SIZE | 1/79 |
| RD | ADDED RECORD INFORMATION | 7-82 |

REVISIONS

C 450381-05




8-01-011/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

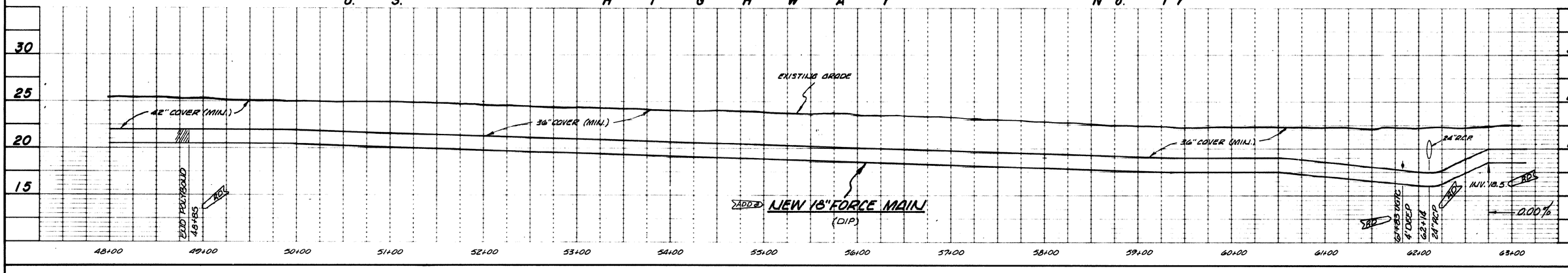
# 18" FORCE MAIN ALONG U.S. HWY 17

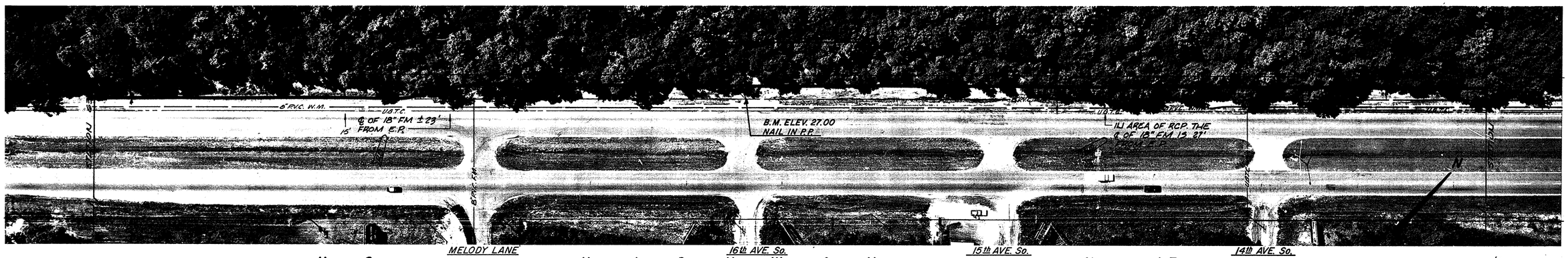
SHEET 5 OF

DATE May-78
Traced 01-86

CA 68505.71
C 450381-05

U. S. HIGHWAY No. 17




U. S. HIGHWAY No. 17




RECORD DRAWING

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: | FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

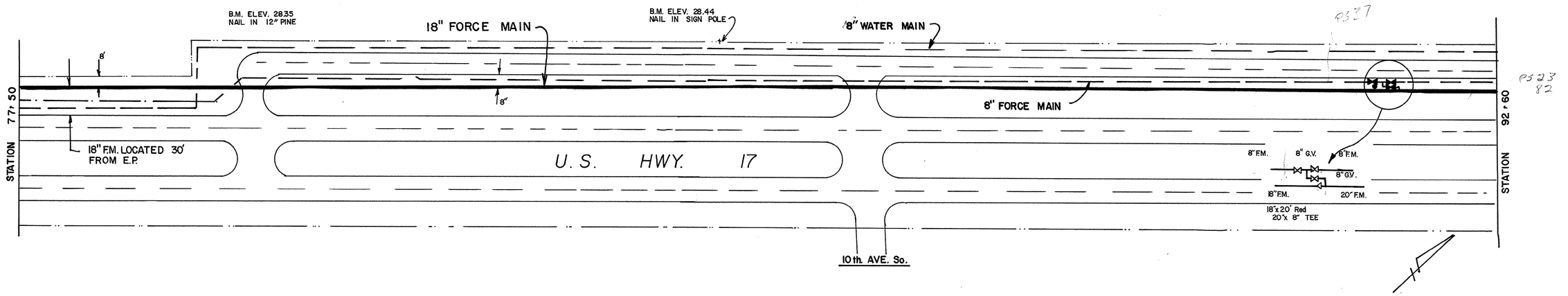
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | CHANGED F.M. SIZE | 1/79 |
| RD | ADDED RECORD INFORMATION | 7-81 |

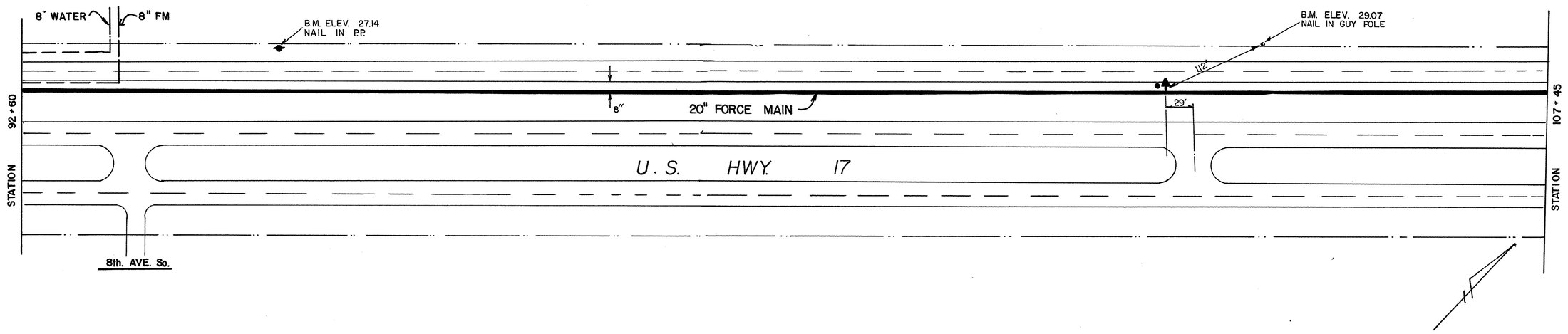
REVISIONS

NEW 18" FORCE MAIN
ALONG U.S. HWY. No. 17

SHEET NO. 5

C 450381-05




8-01-012/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

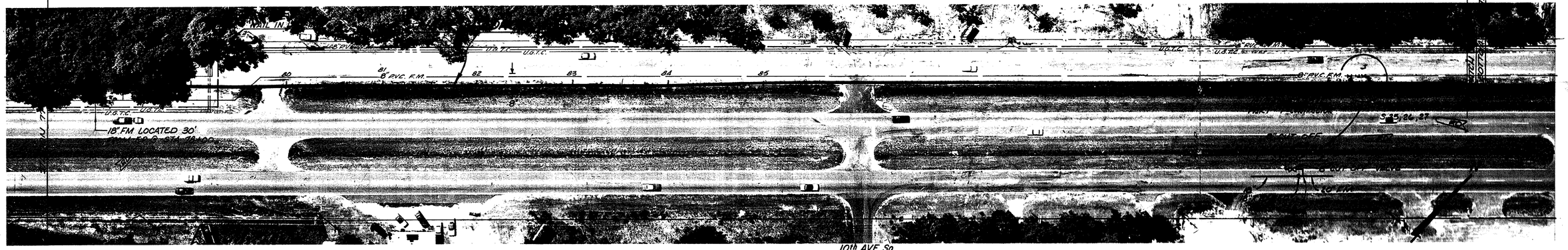
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

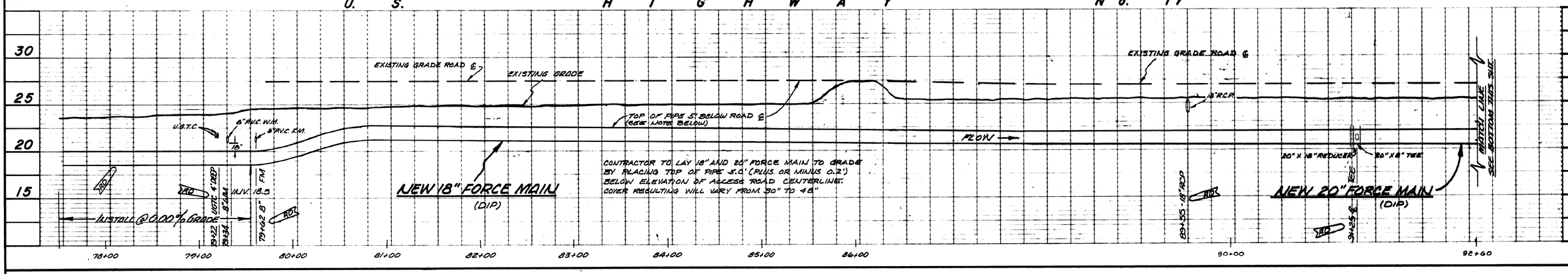
201 SEWER SYSTEM

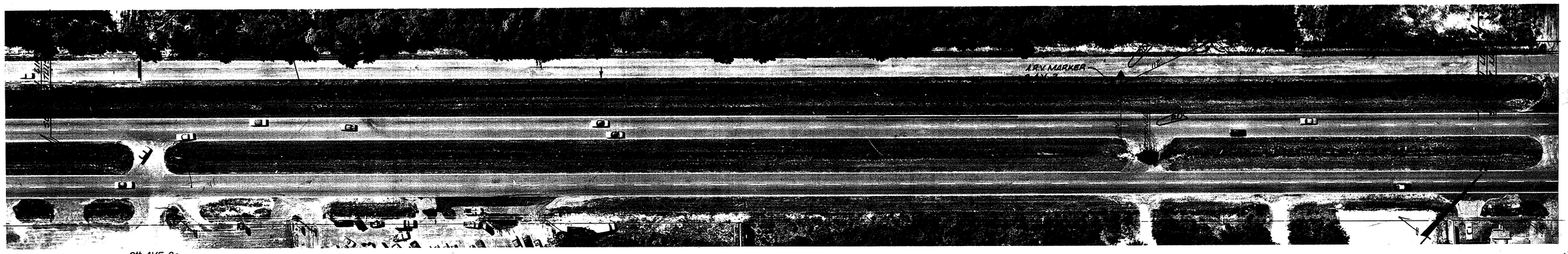
18" & 20" FORCE MAIN ALONG U.S. HWY 17

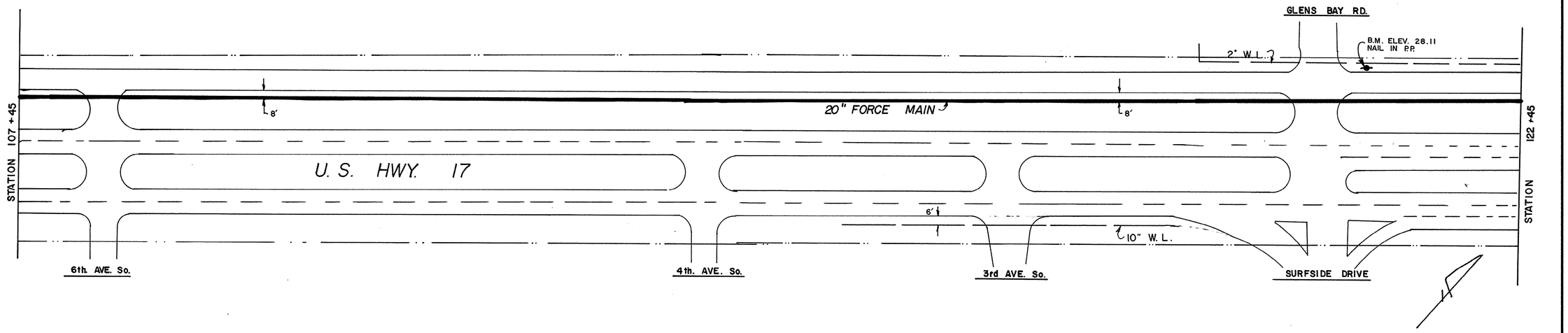
SHEET 6 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05

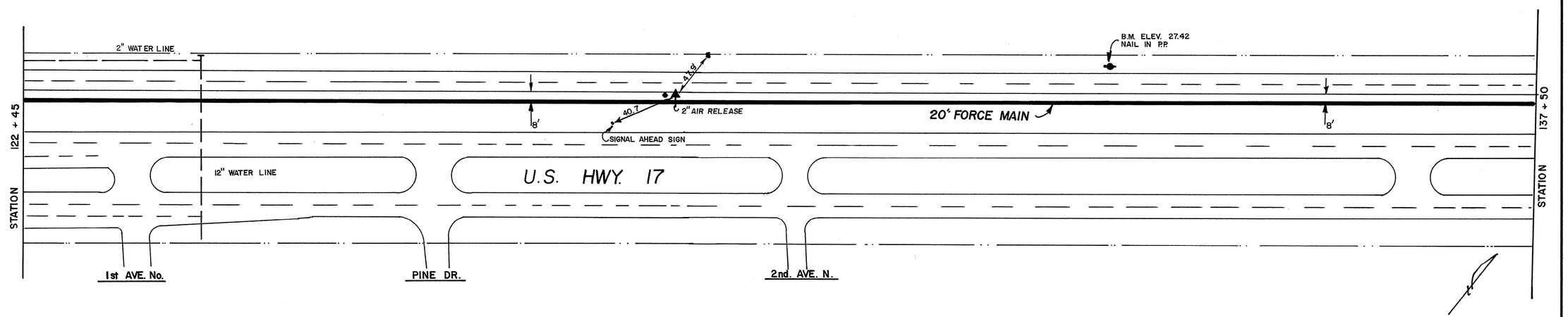



U. S. HIGHWAY No. 17





8th AVE. So.
U.S.T.C.
U.G.T.C.
U.G.E.
U.G.T.V.
U.G.W.
U.G.T.
U.G.P.
U.G.T.
U.G.T.C.
U.G.T.V.
U.G.T.C.
U.G.T.V.
U.G.T.C.
U.G.T.V




8-01-013/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

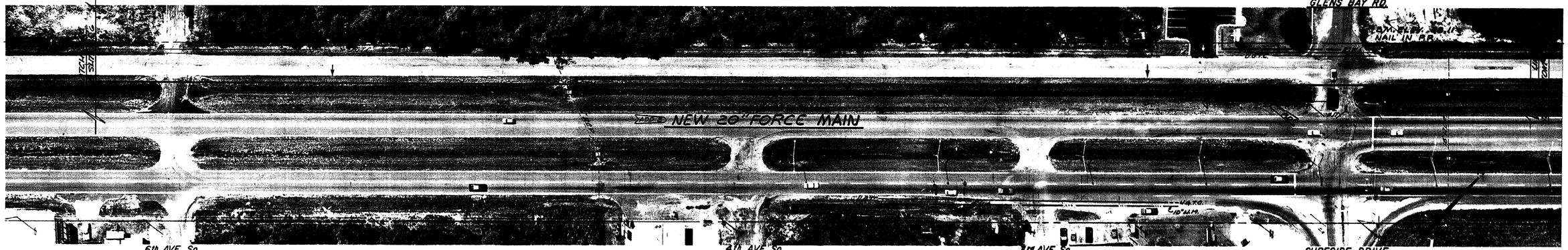
201 SEWER SYSTEM

# 20" FORCE MAIN ALONG U.S. 17

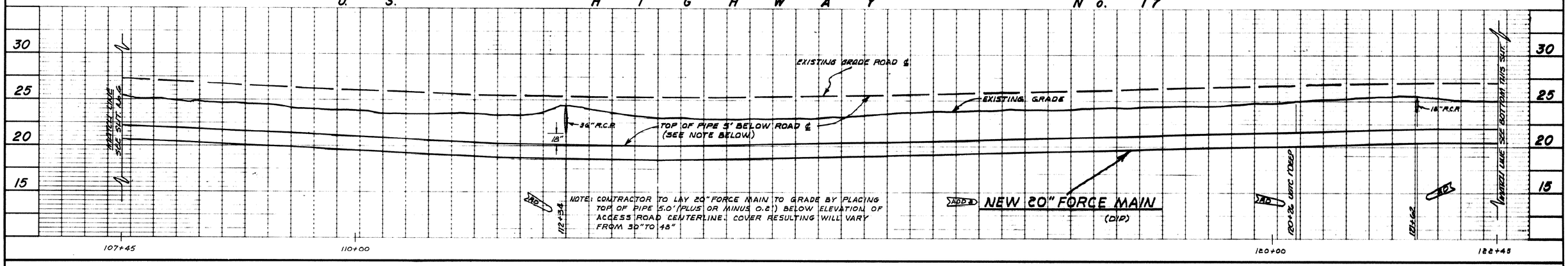
SHEET 7 OF

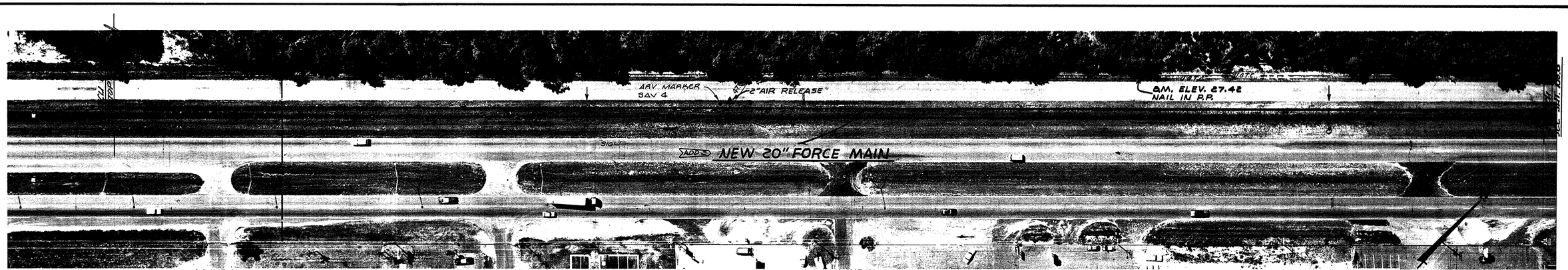
DATE May--78
Traced 01-86

CA 68505.71
C 450381-05

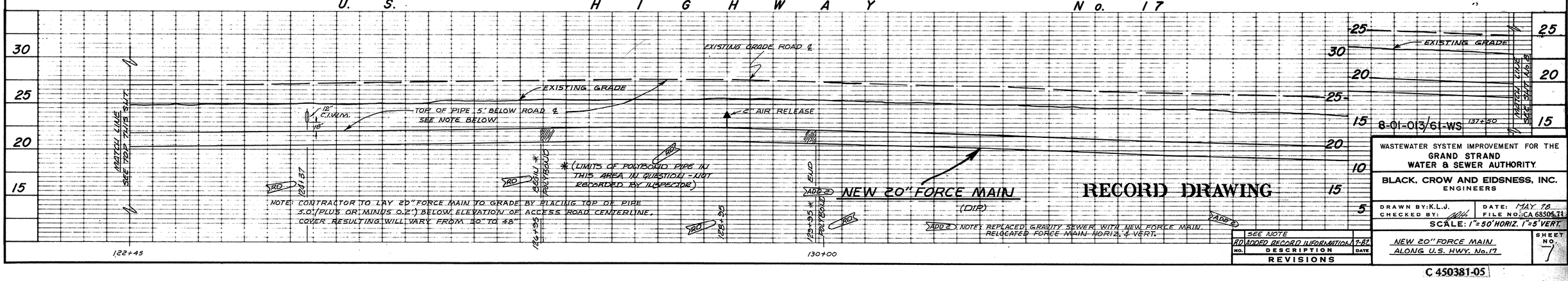



U. S. HIGHWAY No. 17




U. S. HIGHWAY No. 17




RECORD DRAWING

| NO. | REVISIONS DESCRIPTION | DATE |
|---|---|---|
| | SEE NOTE #2 ADDED RECORD INFORMATION | 7-87 |

8-01-013/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

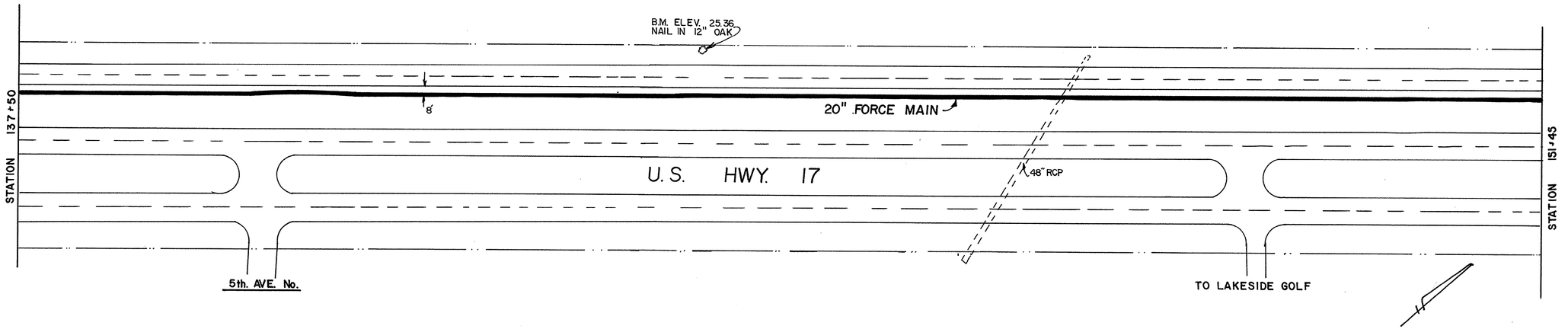
DRAWN BY: K.L.J. | DATE: MAY 88
CHECKED BY: | FILE NO.: CA 68505.71

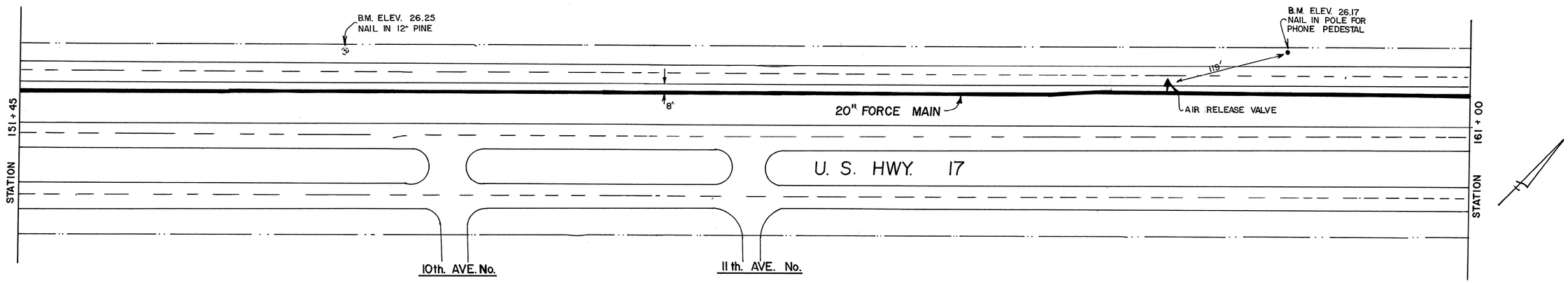
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 20" FORCE MAIN ALONG U.S. HWY. No. 17

SHEET NO. 7

C 450381-05




8-01-014/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

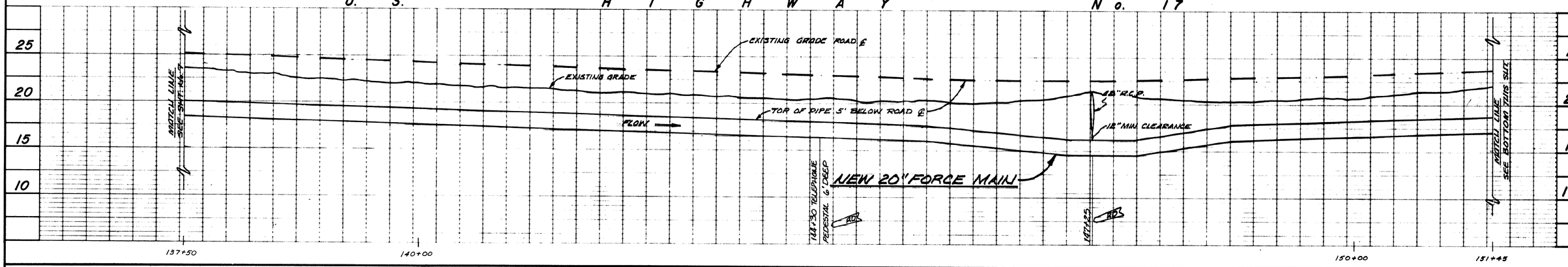
GRAND STRAND WATER & SEWER AUTHORITY

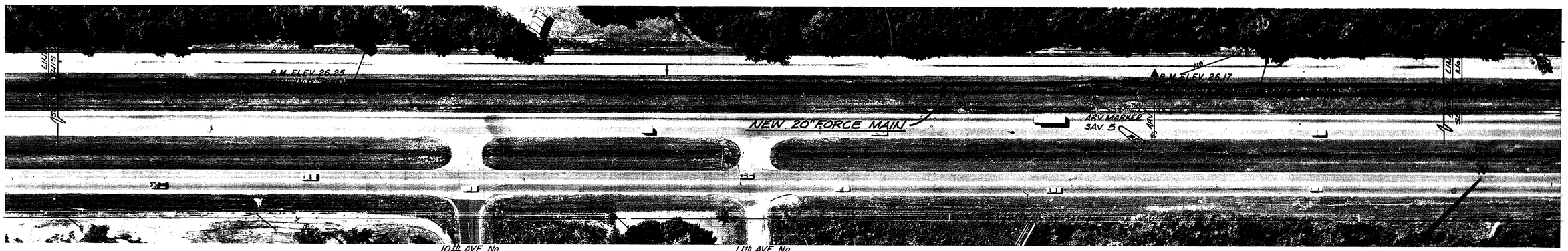
201 SEWER SYSTEM

# 20" FORCE MAIN ALONG U.S. 17

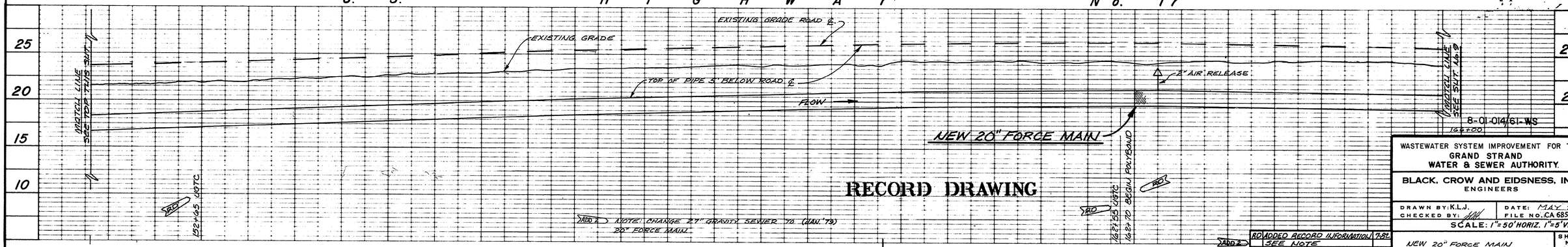
SHEET 8 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05

U. S. HIGHWAY No. 17




U. S. HIGHWAY No. 17




RECORD DRAWING

ADD 2 NOTE: CHANGE 21" GRAVITY SEWER TO (JAN. '79) 20" FORCE MAIN

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. DATE: MAY '78
CHECKED BY: FILE NO. CA 68505.71

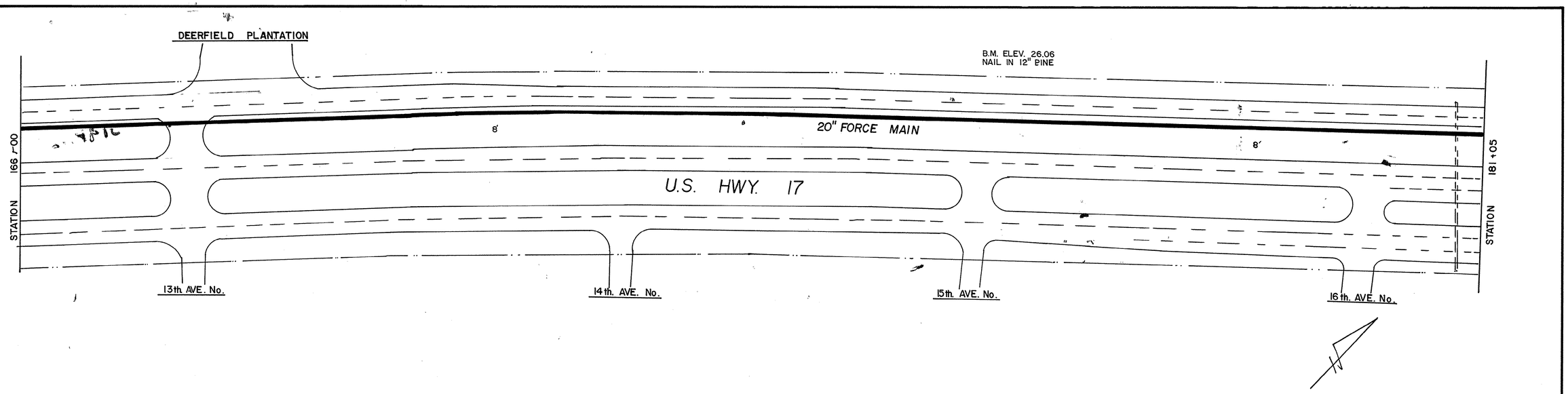
SCALE: 1"=50' HORIZ. 1"=5' VERT.

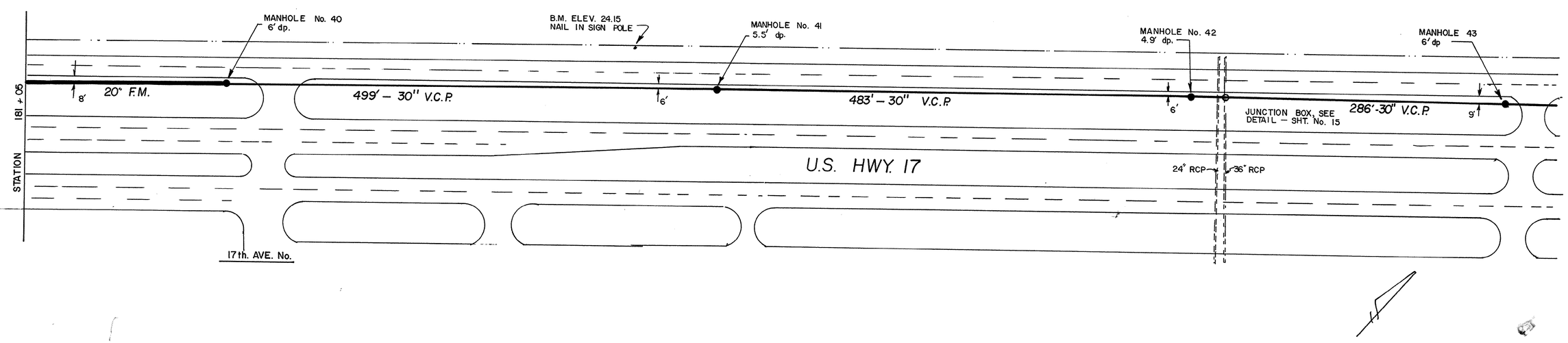
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| 2 | ADDED RECORD INFORMATION SEE NOTE | 7-80 |

NEW 20" FORCE MAIN ALONG U.S. HWY. No. 17

SHEET NO. 3

C 450381-05




8-01-015/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

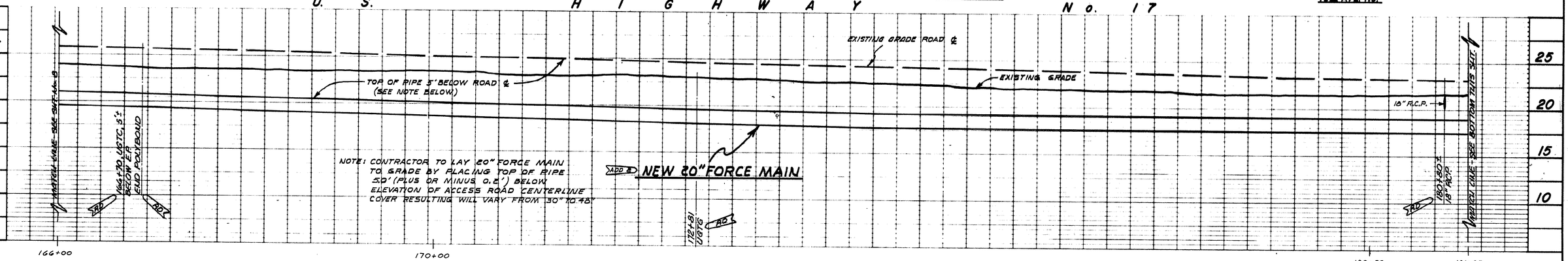
GRAND STRAND WATER & SEWER AUTHORITY

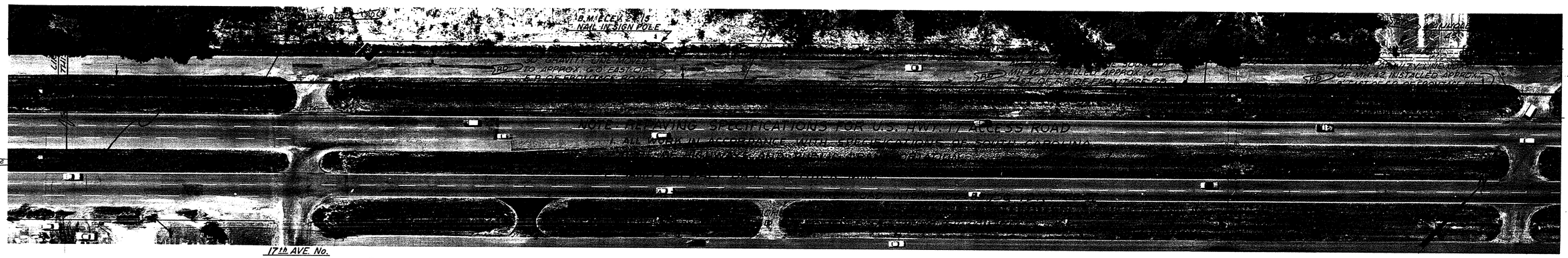
201 SEWER SYSTEM

20" F.M. & 30" GRAVITY ALONG U.S. HIGHWAY 17

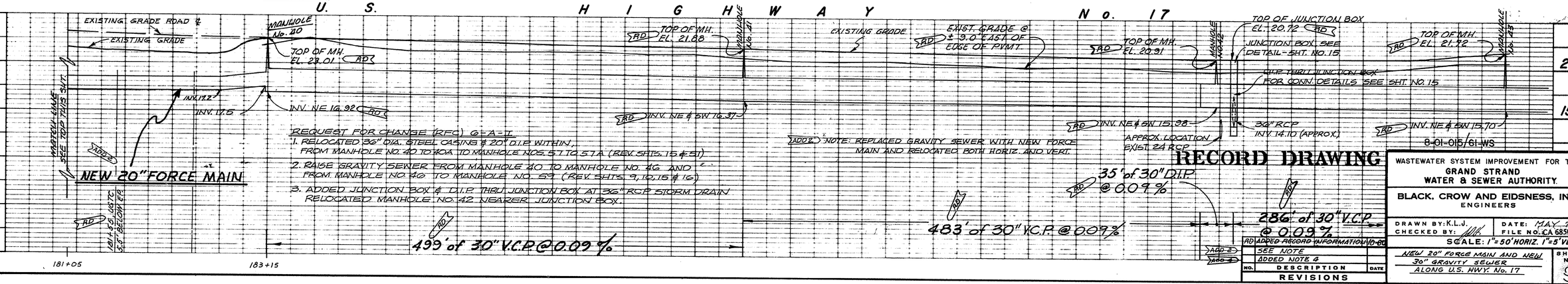
SHEET 9 OF
DATE May-78
Traced 01-86
CA 68505.71
C 450381-05

U. S. H I G H W A Y N o. 1 7




U. S. H I G H W A Y N o. 1 7




**RECORD DRAWING**

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: WR | FILE NO. CA 68505.71

SCALE: 1"=50' HORIZ. 1"=5' VERT.

AD ADDED RECORD INFORMATION 10-80

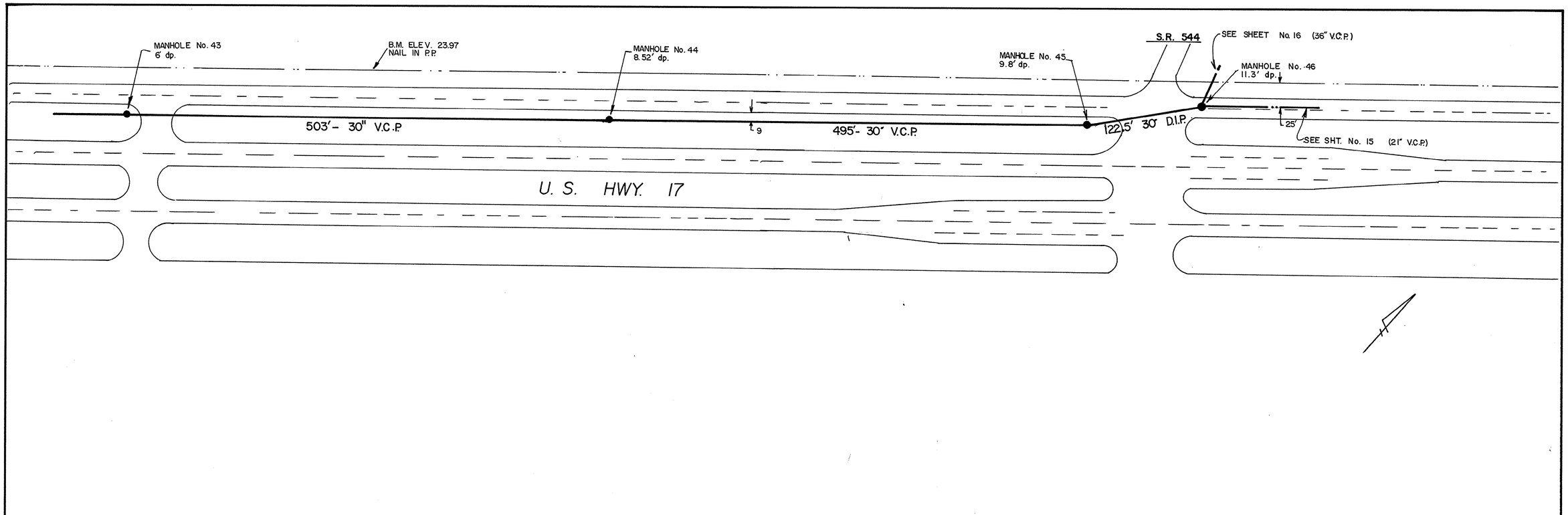
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | SEE NOTE ADDED NOTE 4 | |

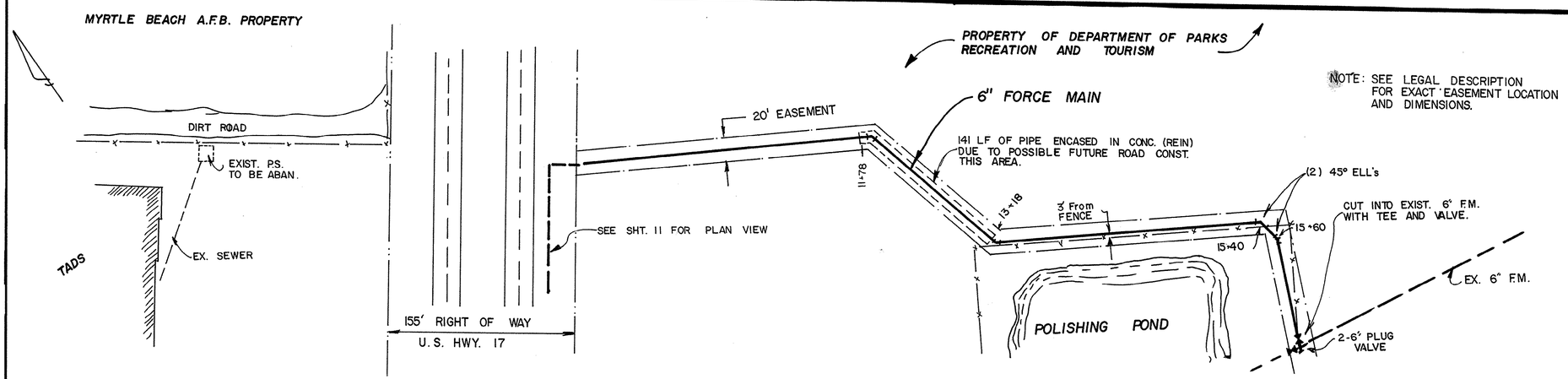
REVISIONS

NEW 20" FORCE MAIN AND NEW 30" GRAVITY SEWER ALONG U.S. HWY. No. 17

SHEET NO. 9

C 450381-05




B-01-016/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

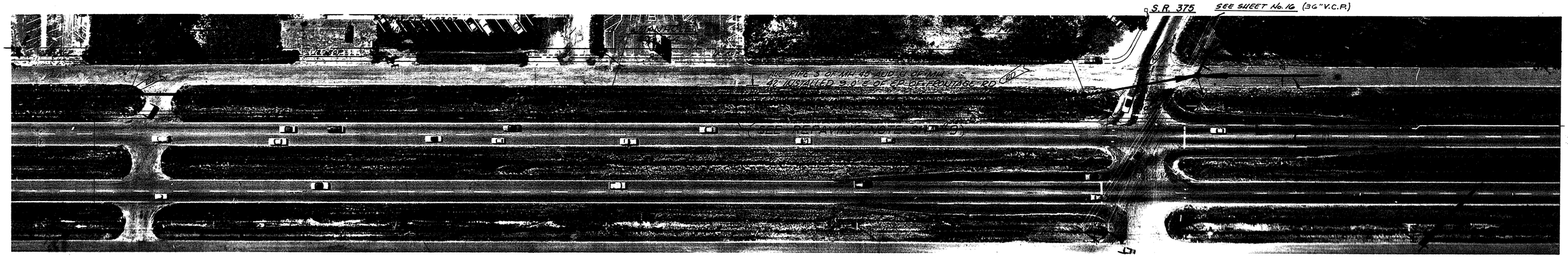
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

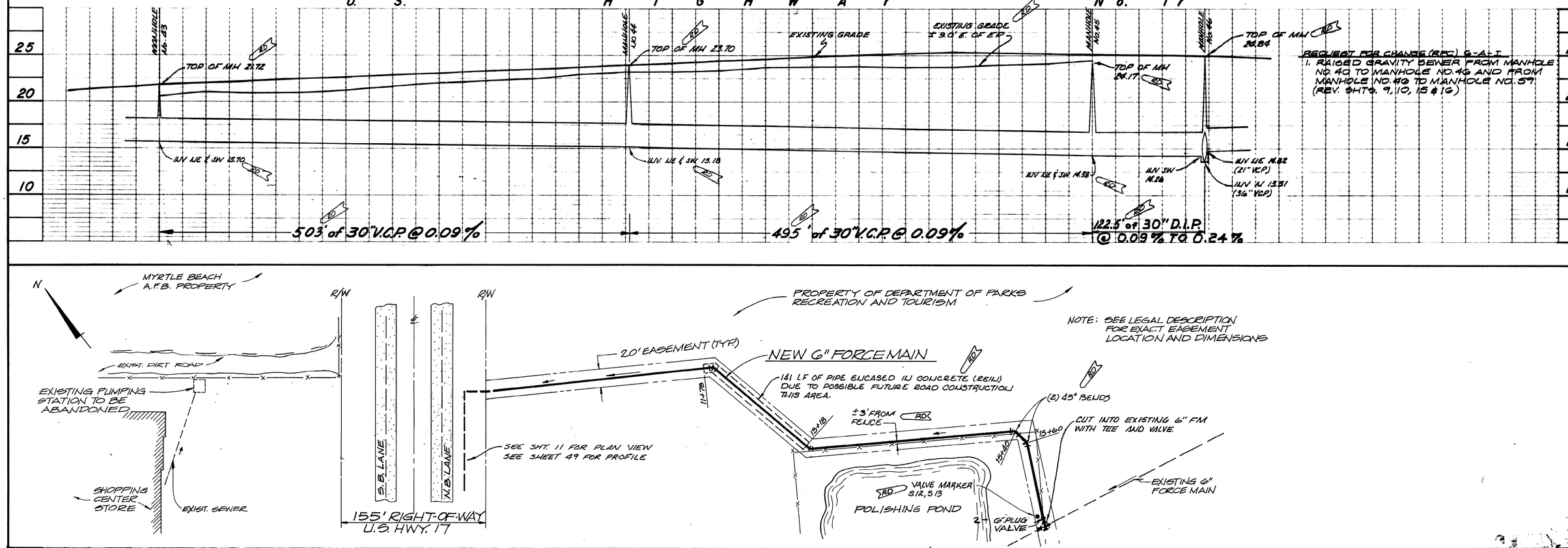
GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

30" GRAVITY SEWER ALONG U.S. HWY 17.

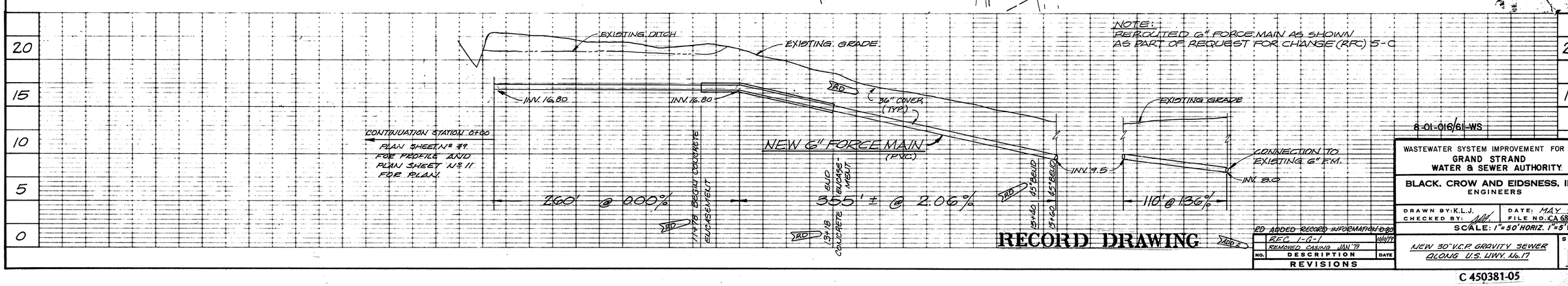
SHEET 10 OF —
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05










RECORD DRAWING

RD ADDED RECORD INFORMATION 4-80

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| | REC. 1-G-1 | 4/80 |
| | REMOVED CASING JAN '79 | |

8-01-016/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

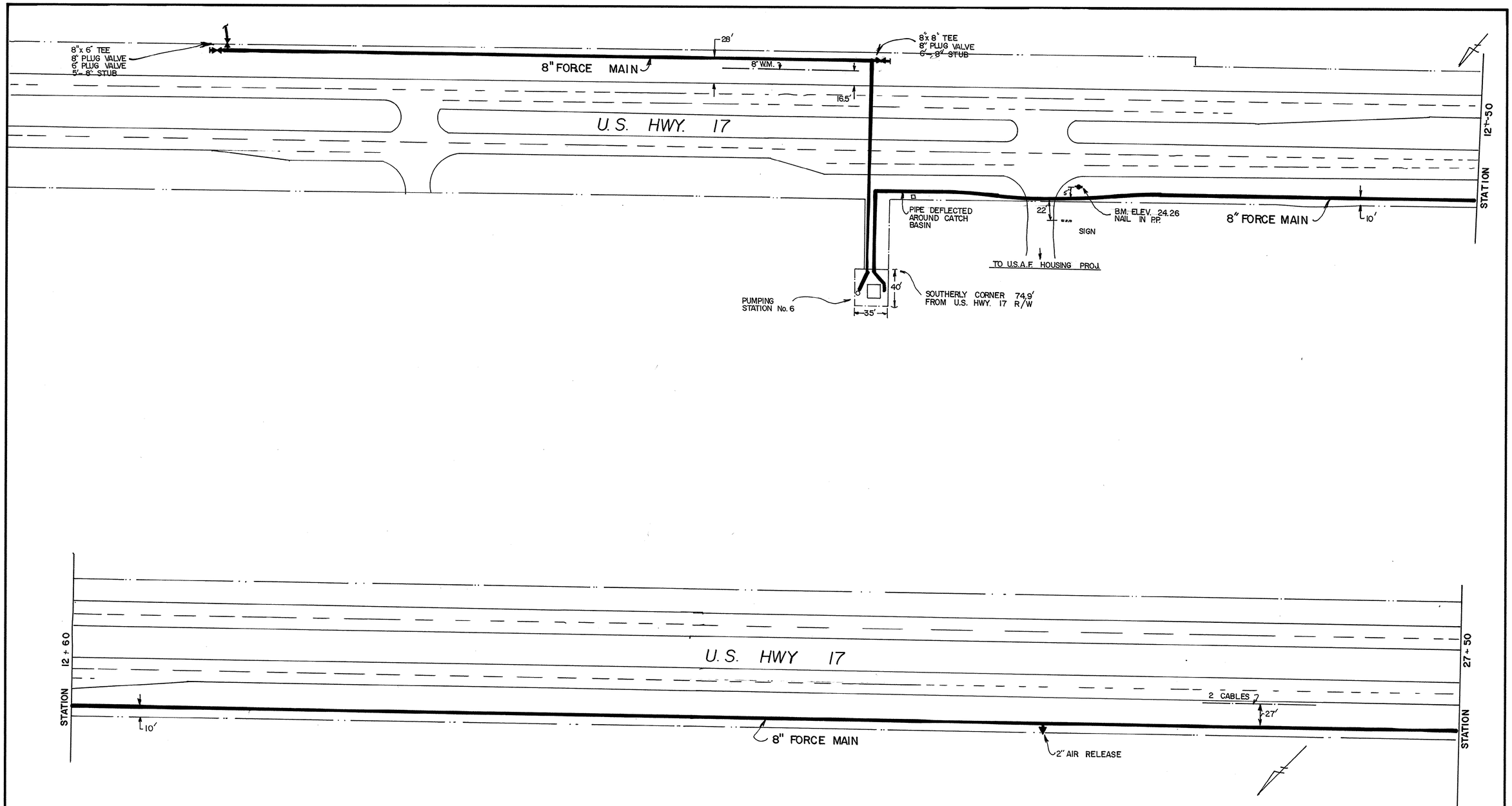
DRAWN BY: K.L.J. DATE: MAY '78
CHECKED BY: FILE NO. CA 68505.71

SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 30" V.C.P. GRAVITY SEWER ALONG U.S. HWY. No. 17

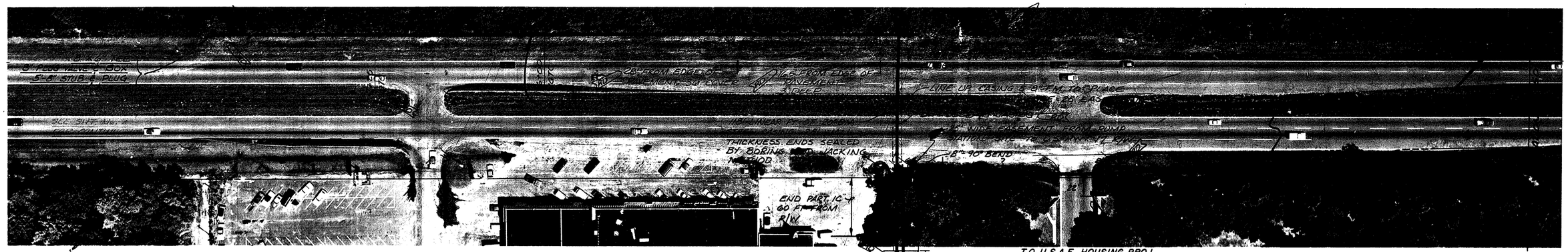
SHEET NO. 10

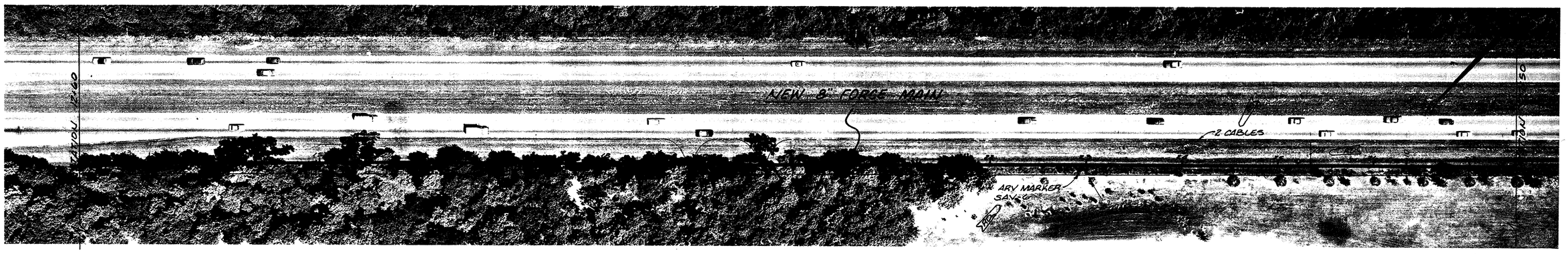
C 450381-05




8-01-017/61-WS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 4" & 8" FORCE MAIN ALONG U.S. HWY 17 | SHEET 11 OF<br>DATE May--78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |






RECORD DRAWING

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

8-01-017/81-WS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: | FILE NO. CA 68505.71

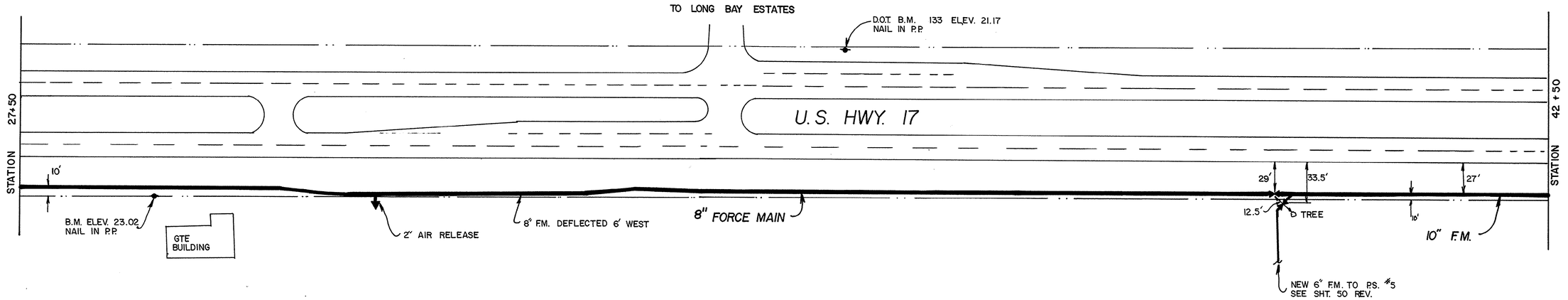
SCALE: 1"=50' HORIZ. 1"=5' VERT.

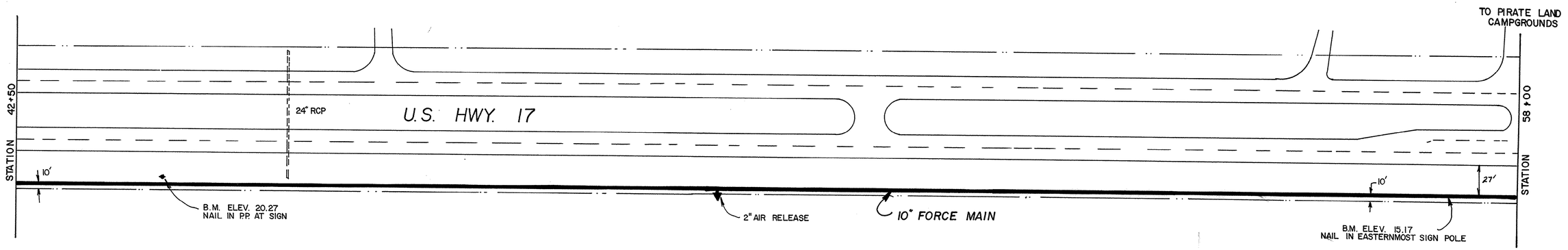
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| | REC. I-C-1 | Volume |
| RD | ADDED RECORD INFORMATION | 7-82 |

NEW 4" & 8" FORCE MAIN ALONG U.S. HWY. No. 17

SHEET NO. 11

C 450381-05




8-01-018/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

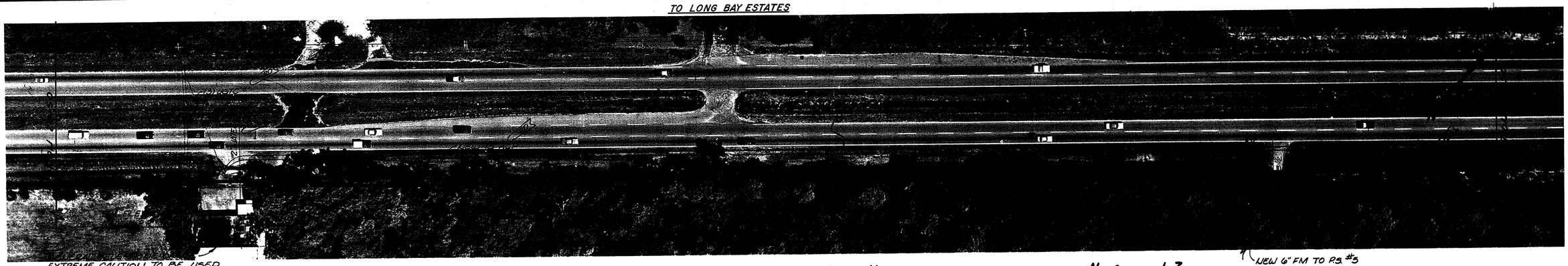
8" & 10" FORCE MAIN ALONG U. S. HWY 17

SHEET 12 OF

DATE May--78
Traced 01-86

CA 68505.71
C 450381-05

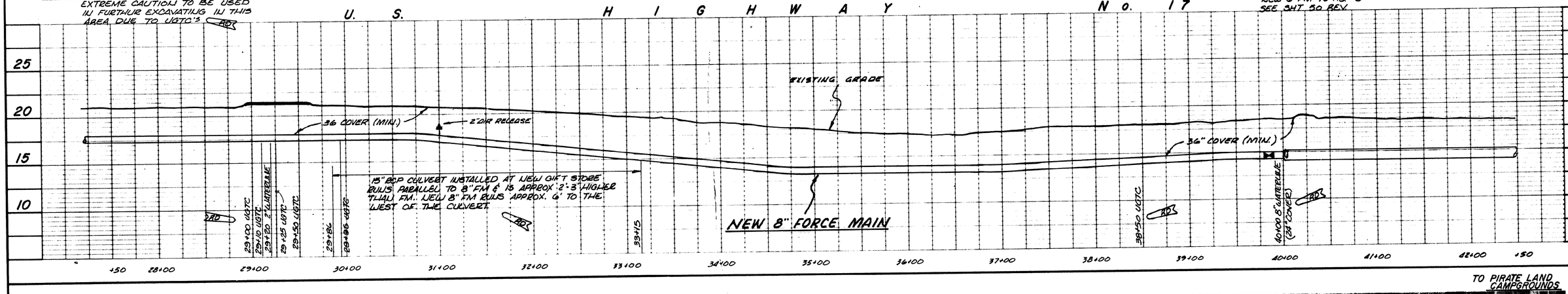
TO LONG BAY ESTATES



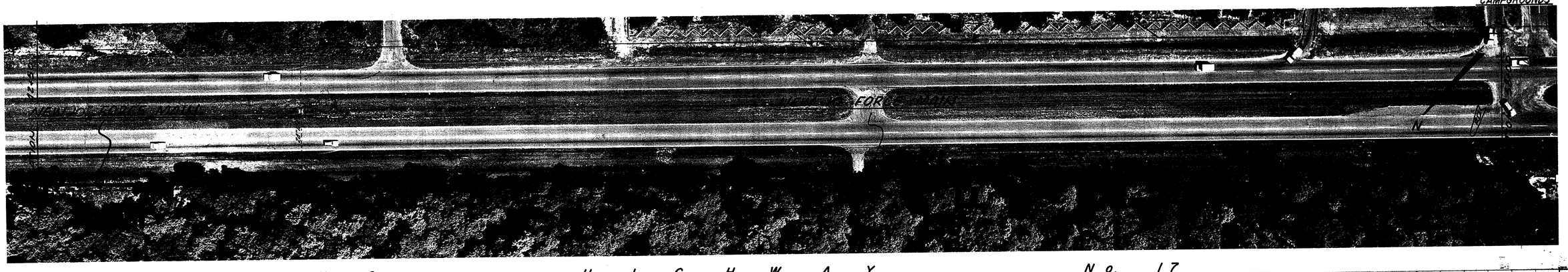
EXTREME CAUTION TO BE USED IN FUETHUR EXCAVATING IN THIS AREA DUE TO UGTC'S

VIEW 6" FM TO PS #3 SEE SHT 30 REV

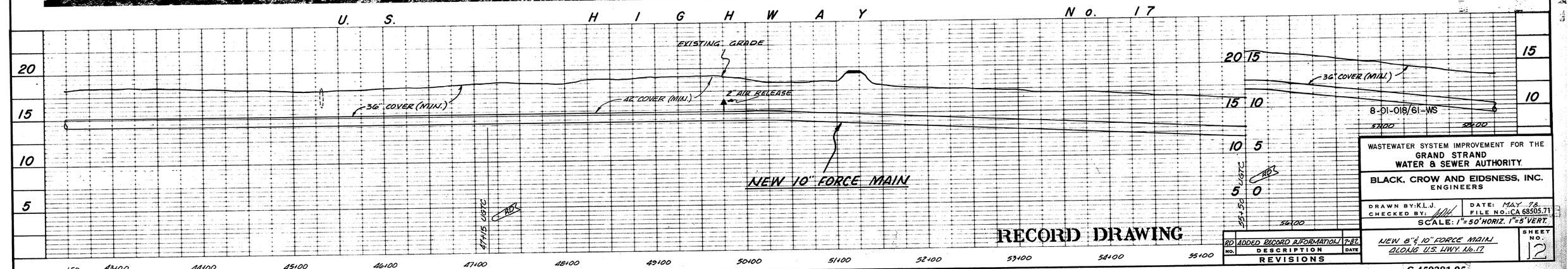
U. S. HIGHWAY No. 17




TO PIRATE LAND CAMPGROUNDS




U. S. HIGHWAY No. 17




RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 7-82 |

REVISIONS

8-01-018/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

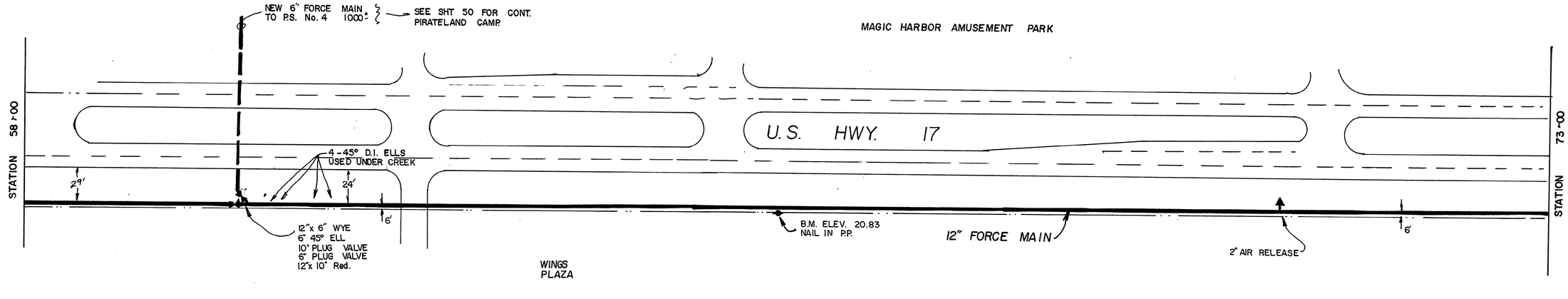
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. DATE: MAY '78
CHECKED BY: FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 8" & 10" FORCE MAIN ALONG U.S. HWY. No. 17

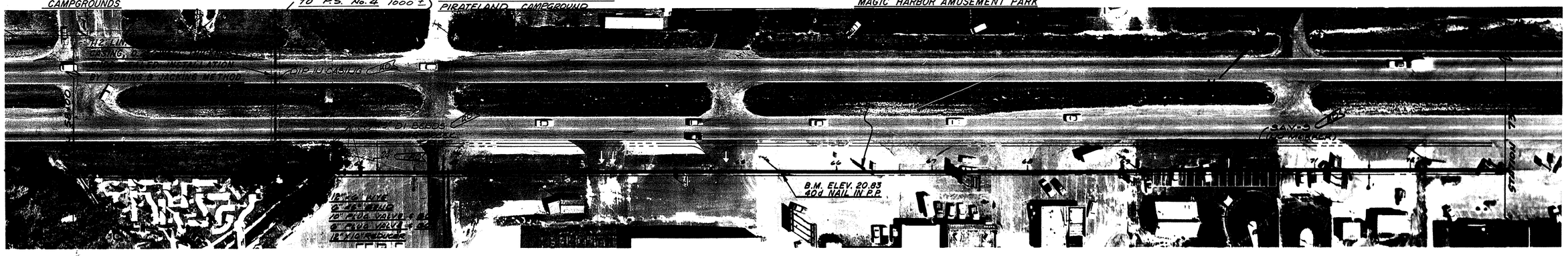
SHEET NO. 12

C 450381-05

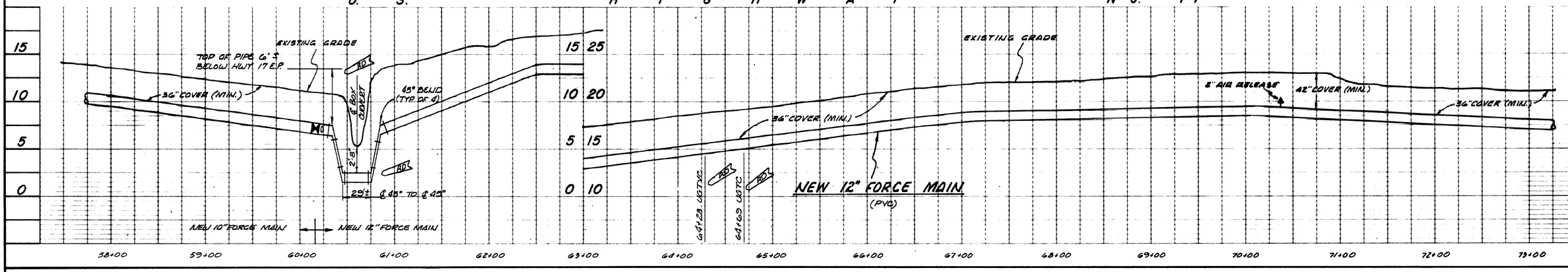



8-01-019/61-WS

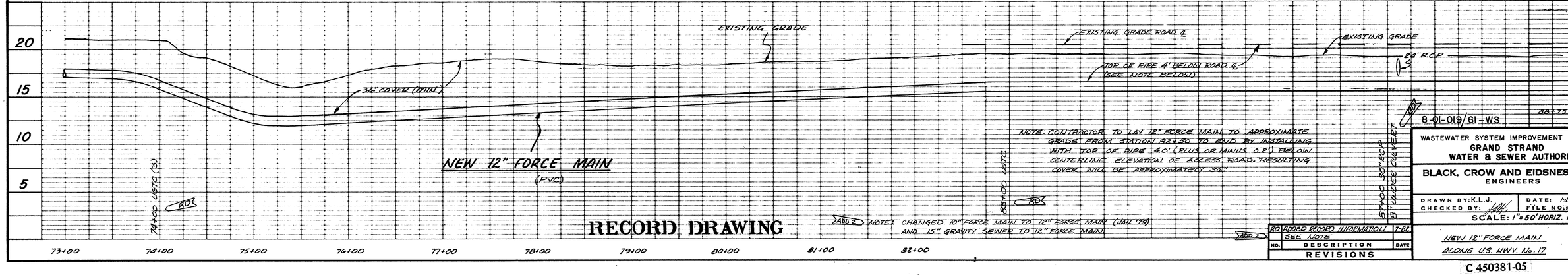
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 12" FORCE MAIN ALONG U. S. HWY 17 | SHEET 13 OF DATE May--78 Traced 01-86 CA 68505.71 C 450381-05 |




U. S. H I G H W A Y N o. 1 7



U. S. H I G H W A Y N o. 1 7




WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND WATER & SEWER AUTHORITY.

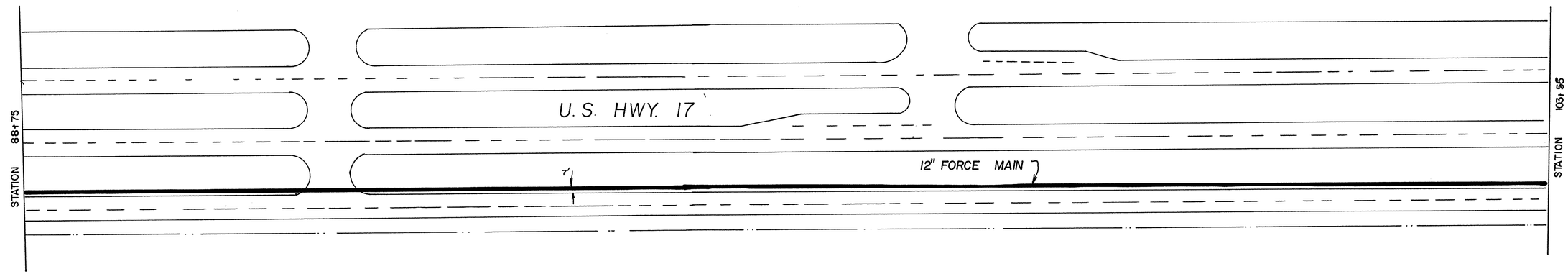
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

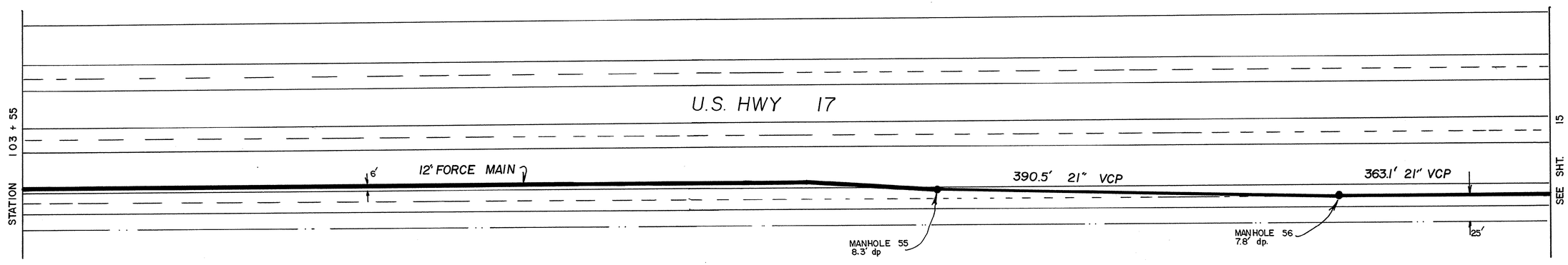
DRAWN BY: K.L.J. DATE: MAY '78
CHECKED BY: FILE NO: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 12" FORCE MAIN ALONG U.S. HWY. No. 17

SHEET NO. 13

C 450381-05




8-01-020/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

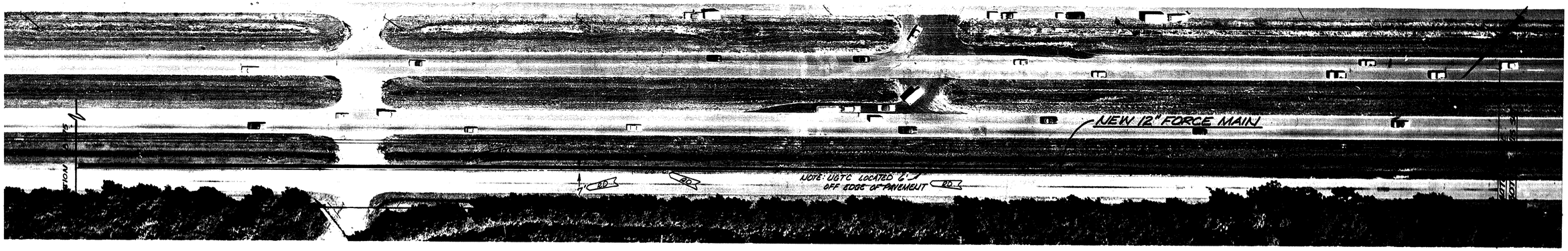
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

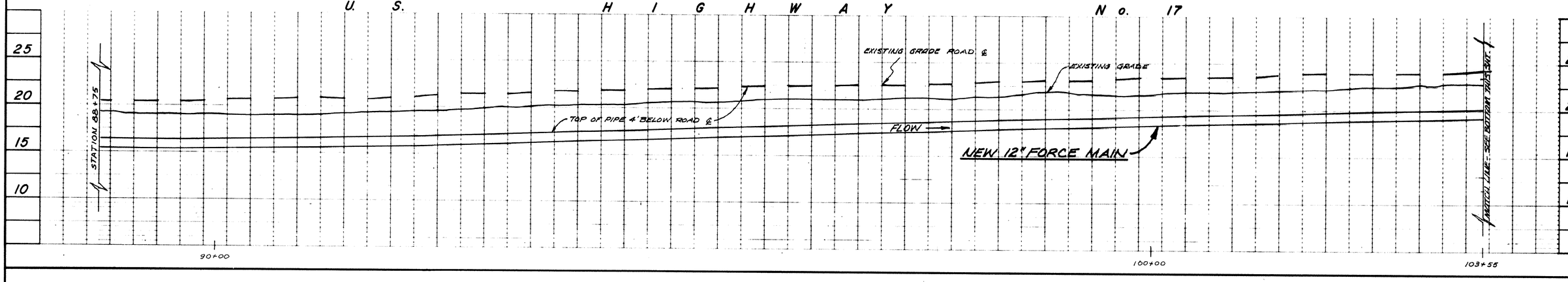
GRAND STRAND WATER & SEWER AUTHORITY

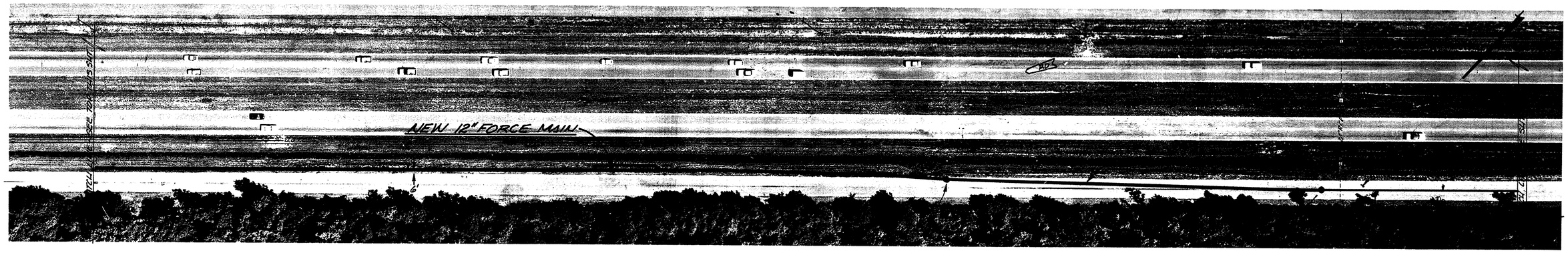
201 SEWER SYSTEM

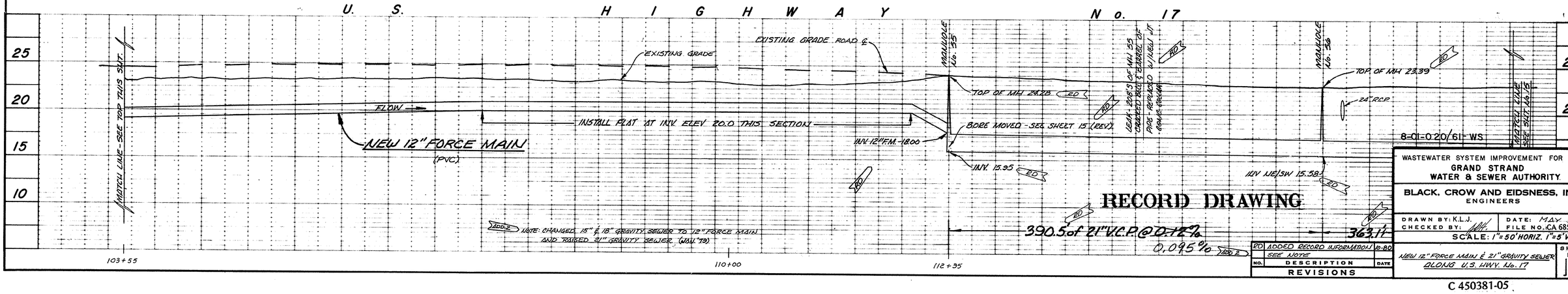
12" F. M. & 21" GRAVITY ALONG U.S. HWY 17

SHEET 14 OF
DATE May—78
Traced 01-86
CA 68505.71
C 450381-05




RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION No. 80 SEE NOTE | |

REVISIONS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

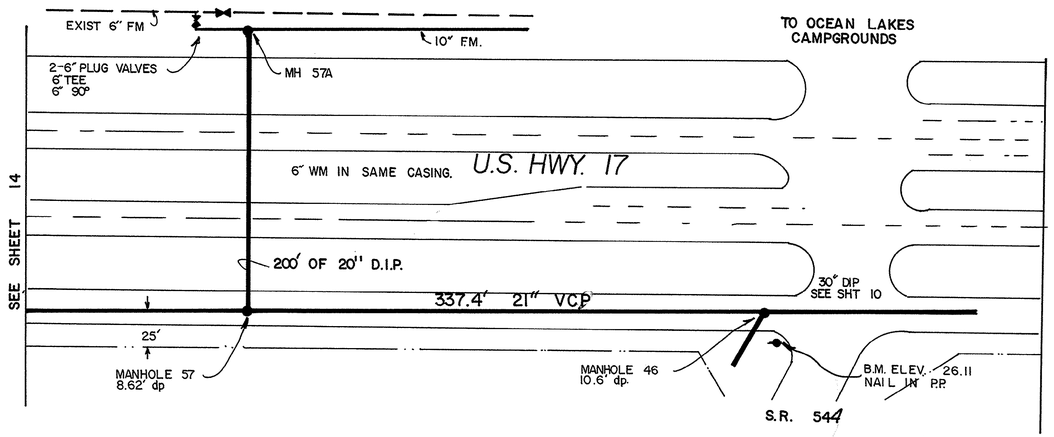
DRAWN BY: K.L.J. | DATE: MAY '78
CHECKED BY: | FILE NO. CA 68505.71

SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 12" FORCE MAIN & 21" GRAVITY SEWER ALONG U.S. HWY. No. 17

SHEET NO. 14

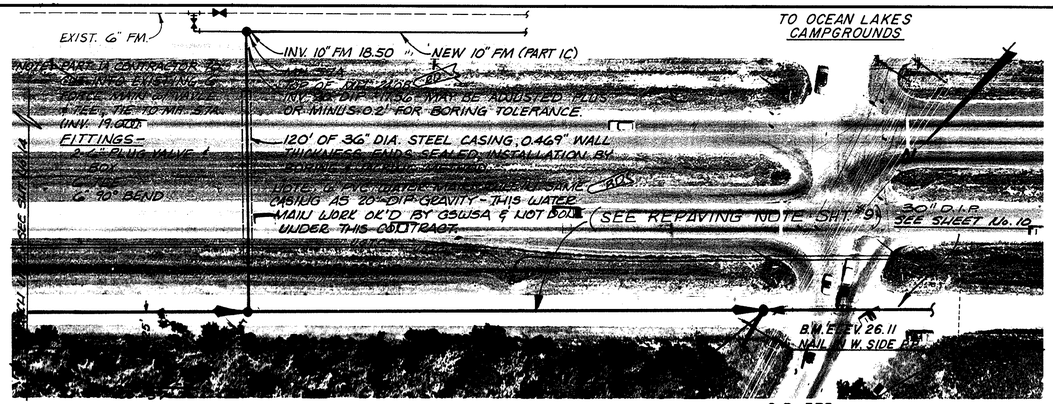
C 450381-05



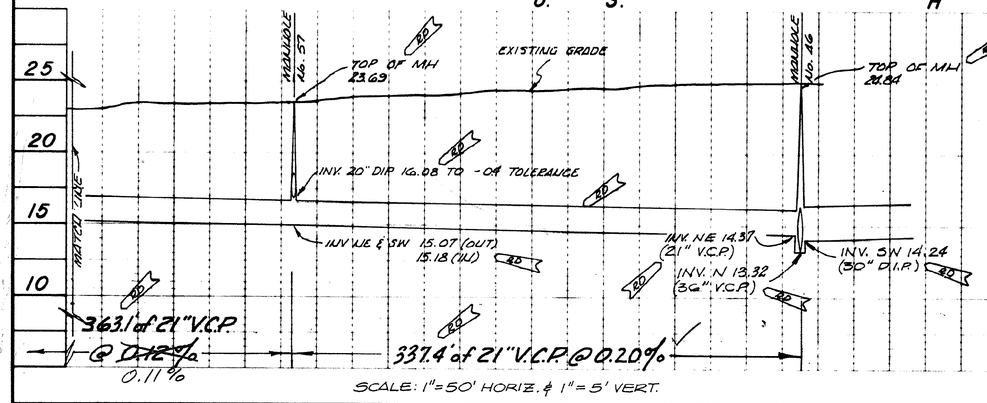

8-01-021/61-WS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 21" GRAVITY SEWER ALONG U.S. HWY 17 |

SHEET 15 OF
DATE May—78
Traced 01-86
CA 68505.71
C 450381-05




U. S. HIGHWAY No. 17



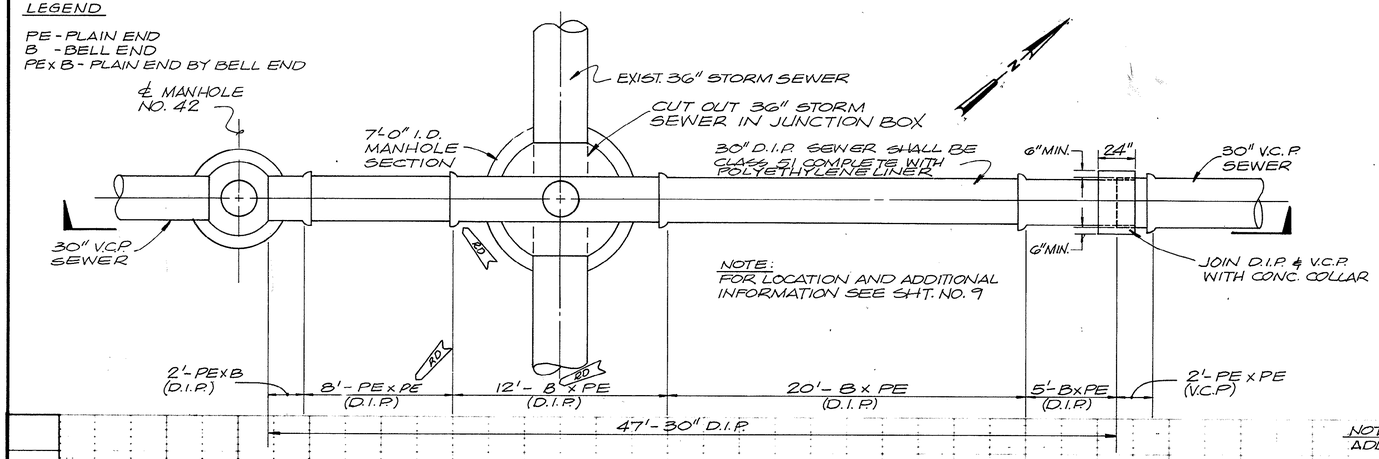

SCALE: 1"=50' HORIZ. & 1"=5' VERT.

REQUEST FOR CHANGE (RFC) 5-A-I, 6-A-I & 14-C

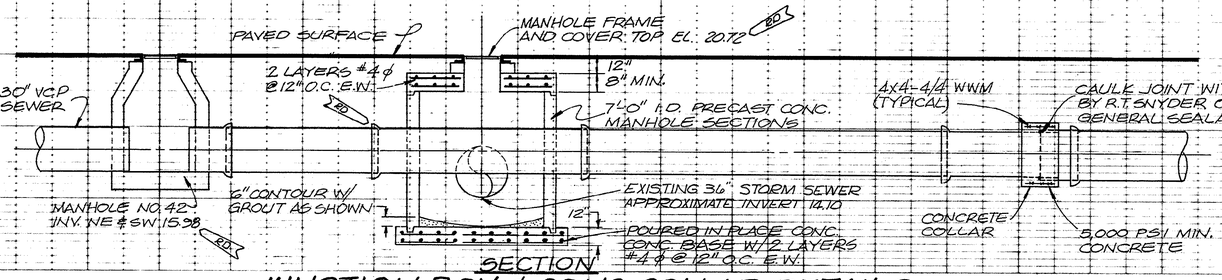
1. ELIMINATED 21" DROP PIPING AT MANHOLE NO. 46.
2. RELOCATED 36" STEEL CASING & 20" D.I.P WITHIN FROM MANHOLE NOS. 40 TO 40A TO MANHOLE NOS. 57 TO 57A.
3. RELOCATED ALL WORK ASSOCIATED WITH TIE-IN TO EXIST. 6" FM AT MANHOLE NO. 55A TO MANHOLE NO. 57A.
4. CONNECTED NEW 10" FM (PART OF RFC 14-C, SHTS. A-2, 15 & U-2 OF THE PART I PLANS) TO MANHOLE 57A.
5. INCREASED SLOPE OF 21" V.C.P GRAVITY SEWER.

LEGEND

PE - PLAIN END
B - BELL END
PE x B - PLAIN END BY BELL END




PLAN




SECTION

JUNCTION BOX & CONC. COLLAR DETAILS - 1/4"=1'-0"

NOTE: ADDED DETAILS AS PART OF (RFC) G-A-I.

ADD 2 NOTE: RAISED 21" GRAVITY SEWER. (JAN. '79)

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| | SEE NOTE | |
| RD | ADDED RECORD DRAWING INFO. | 10-80 |
| RD | ADDED RECORD INFORMATION | 7-80 |

8-01-021/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. CHECKED BY: DATE: MAY '78 FILE NO. CA 68505.71

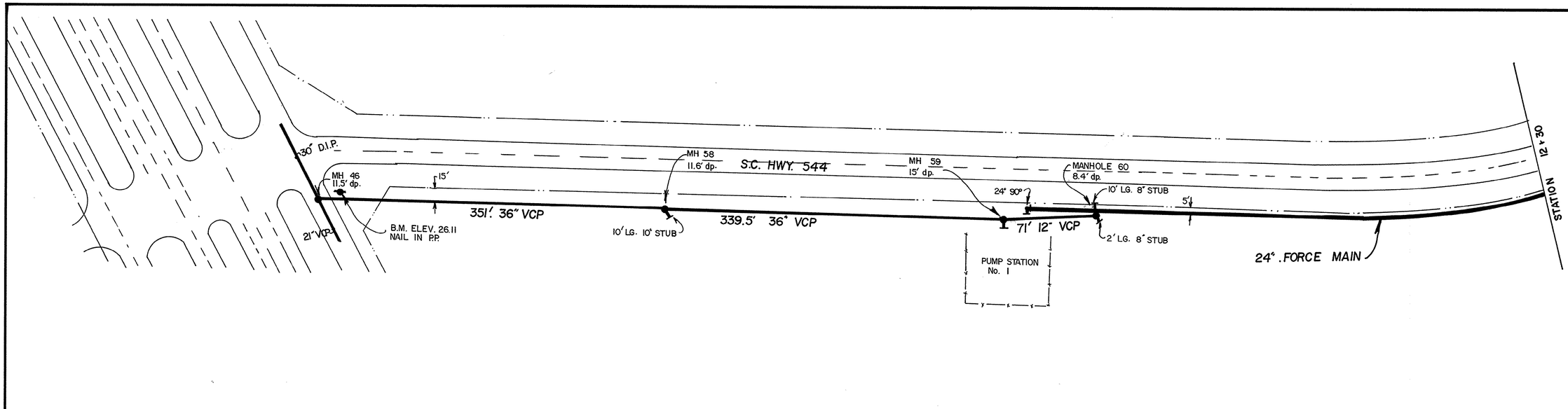
SCALE: AS SHOWN

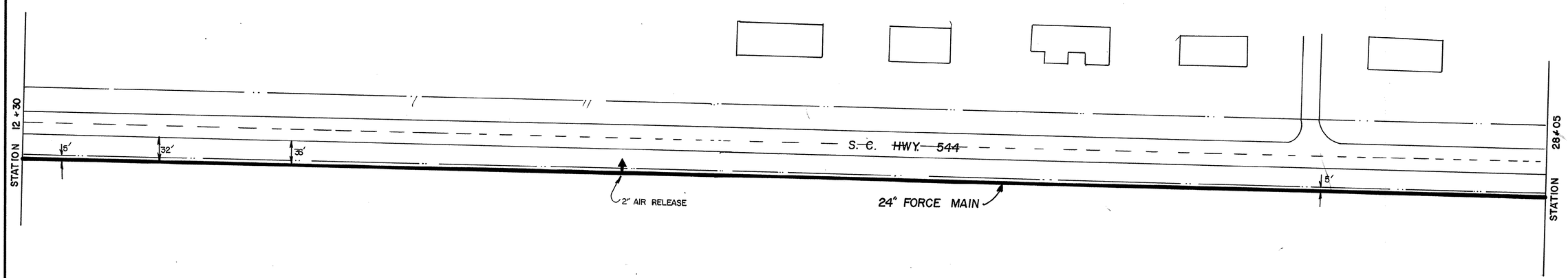
RECORD DRAWING

NEW 21" V.C.P. GRAVITY SEWER ALONG U.S. HWY. No. 17

SHEET NO. 15

C 450381-05




8-01-022/61-ws

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|
| | | | | |

GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

36" VCP,12" VCP, 24" FM ALONG S.C. HWY 544

SHEET OF 16

DATE May---78

Traced 01-86

CA 68505.71

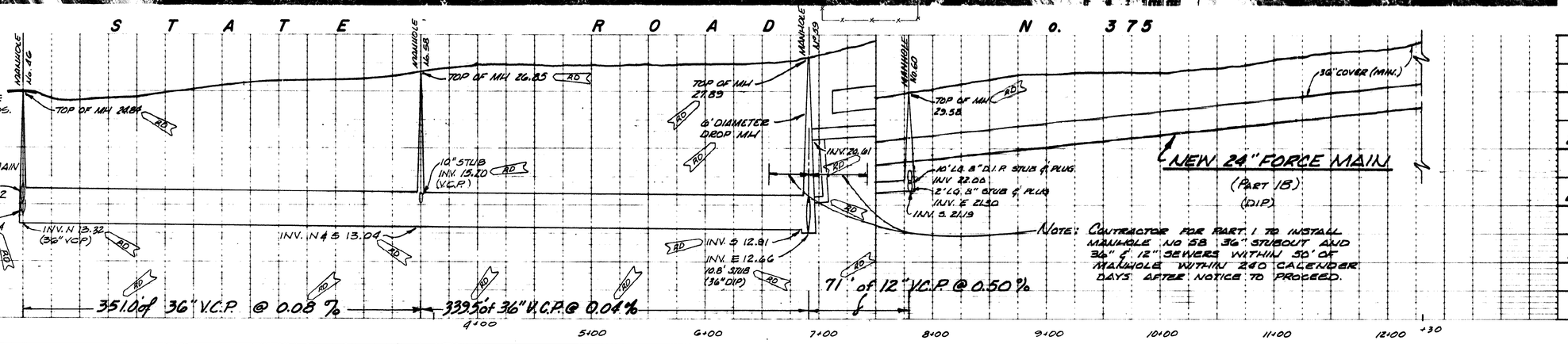
C 450381-05

U.S. HIGHWAY No. 17

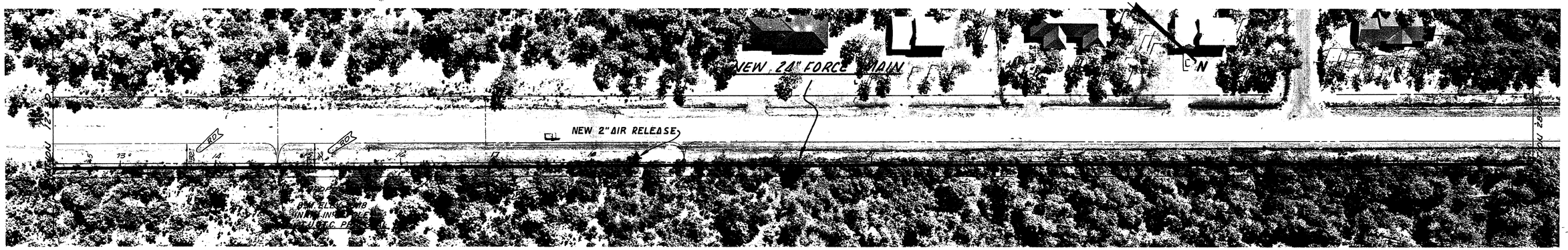
S T A T E R O A D N o. 375

REQUEST FOR CHANGE (RFC) 5-A-I, 6-A-I, 5-B AND I-E

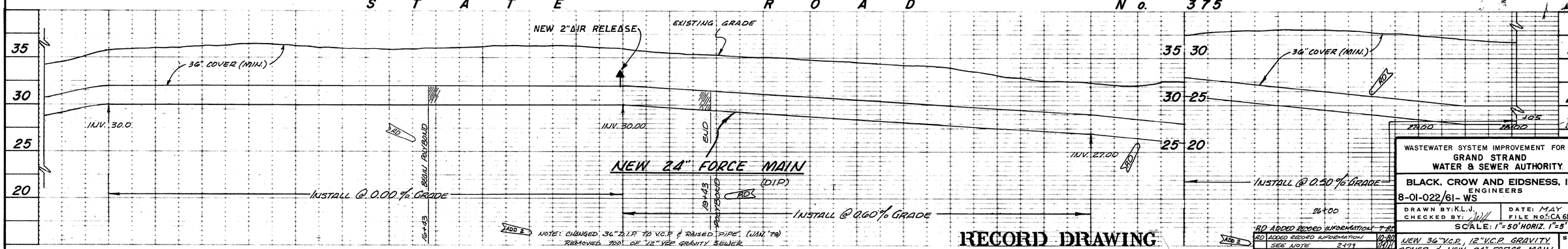
1. ELIMINATED 21" D.I.P. DROP PIPING AT MANHOLE NO. 46.
2. RAISED GRAVITY SEWER FROM MANHOLE NOS. 40 TO 46 AND FROM MANHOLE NOS. 46 TO 59 (REVISIONS 9, 10, 16 & 16).
3. ADDED APPROX. 340' OF 36" GRAVITY SEWER & DELETED APPROX. 370' OF 12" GRAVITY SEWER
4. DELETED APPROX. 340' OF 24" FORCE MAIN




NOTE: CONTRACTOR FOR PART 1 TO INSTALL MANHOLE NO 58 36" STUBOUT AND 36" & 12" SEWERS WITHIN 50' OF MANHOLE WITHIN 240 CALENDER DAYS AFTER NOTICE TO PROCEED.




S T A T E R O A D N o. 375




WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

8-01-022/61-WS

DRAWN BY: K.L.J. | DATE: MAY 78

CHECKED BY: JWW | FILE NO.: CA 68505.71

SCALE: 1"=50' HORIZ. 1"=5' VERT.

RD ADDED RECORD INFORMATION 7-82

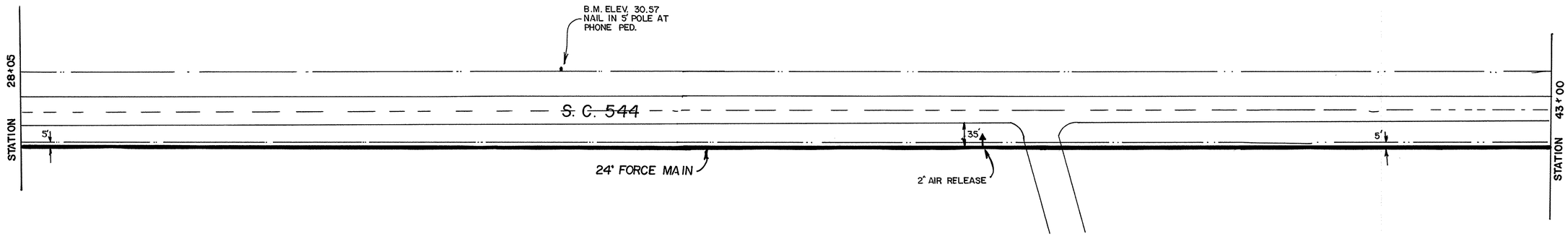
| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 10-80 |
| | SEE NOTE 2-171 | JWW |

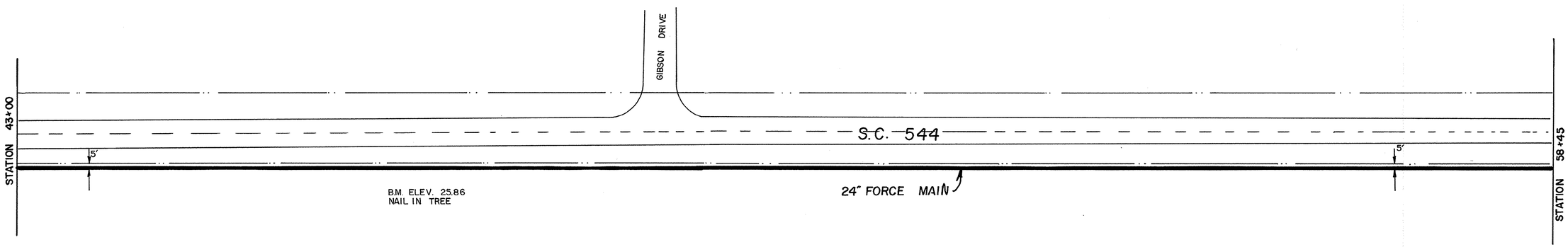
REVISIONS

NEW 36" V.C.P., 12" V.C.P. GRAVITY SEWER & NEW 24" FORCE MAIN ALONG S.R. No. 375

SHEET NO. 16

C 450381-05




8-01-023/61-WS

Graphic Scale 50 0 50 100

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

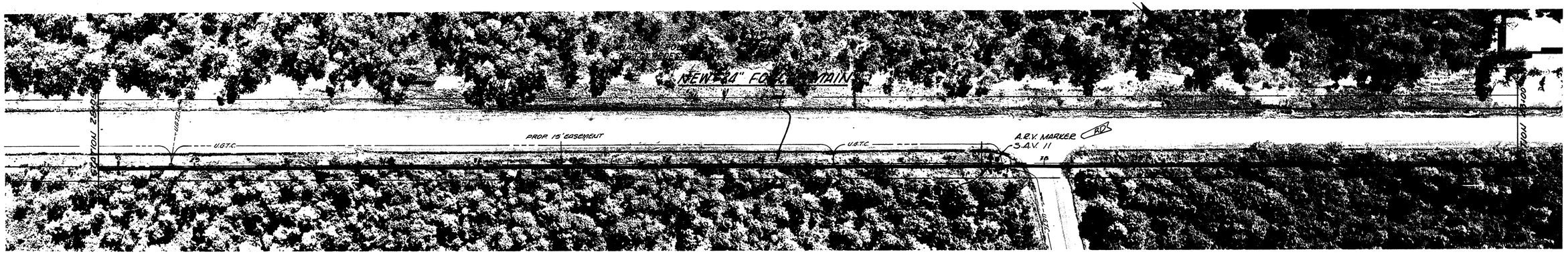
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

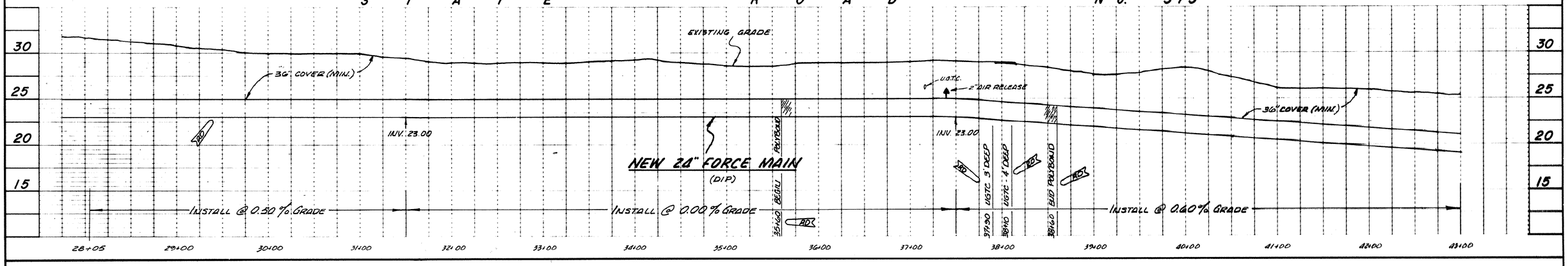
201 SEWER SYSTEM

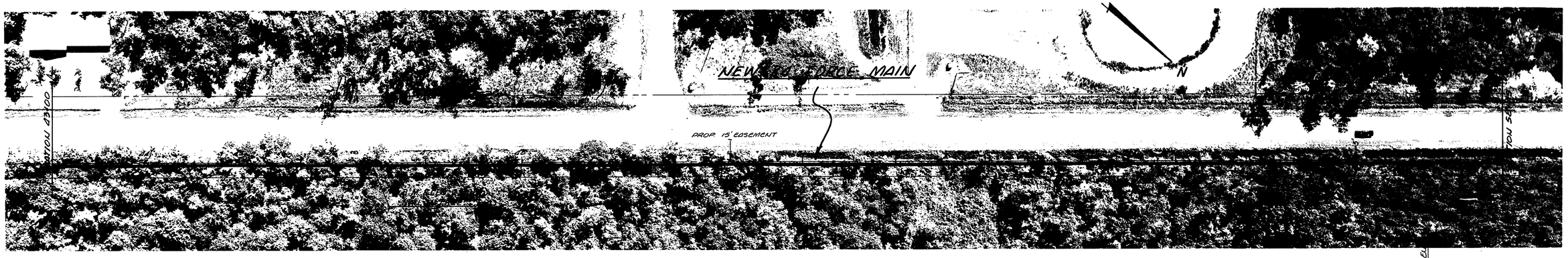
# 24" FORCE MAIN ALONG U.S.HWY 544

SHEET 17 OF
DATE May--78
Traced 01-86
CA 685U5.71
C 450381-05

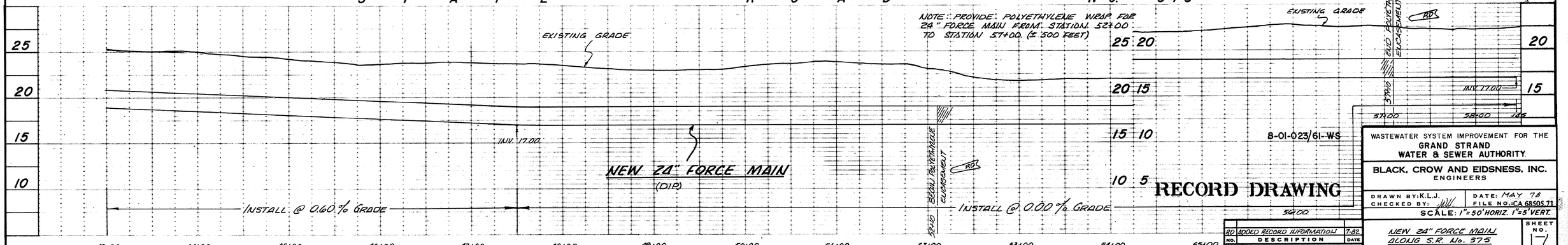



S T A T E R O A D N o. 375




S T A T E R O A D N o. 375




8-01-023/61-WS

RECORD DRAWING

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

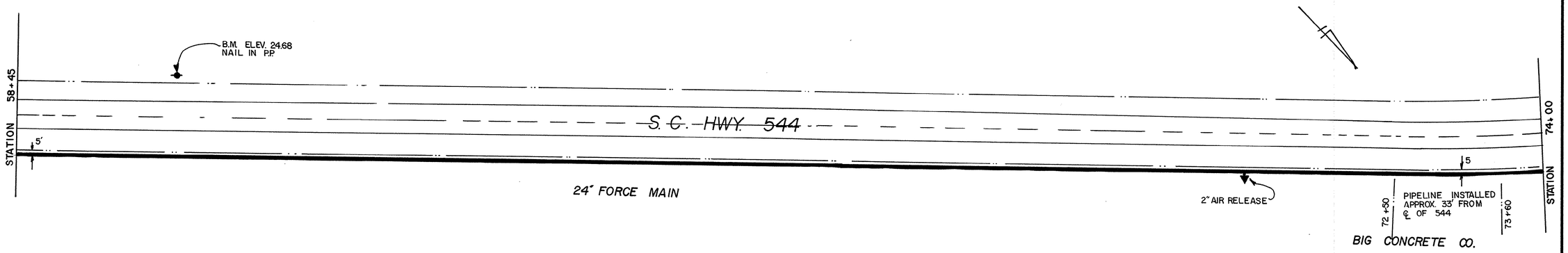
DRAWN BY: K.L.J. DATE: MAY 78
CHECKED BY: WW FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5 VERT.

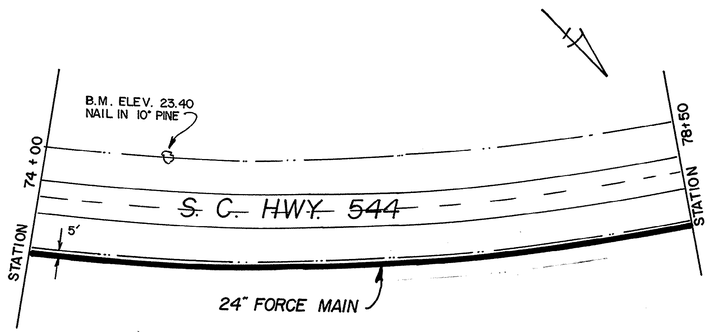
| NO. | REVISIONS DESCRIPTION | DATE |
|---|---|---|
| AD | ADDED RECORD INFORMATION | 7-82 |

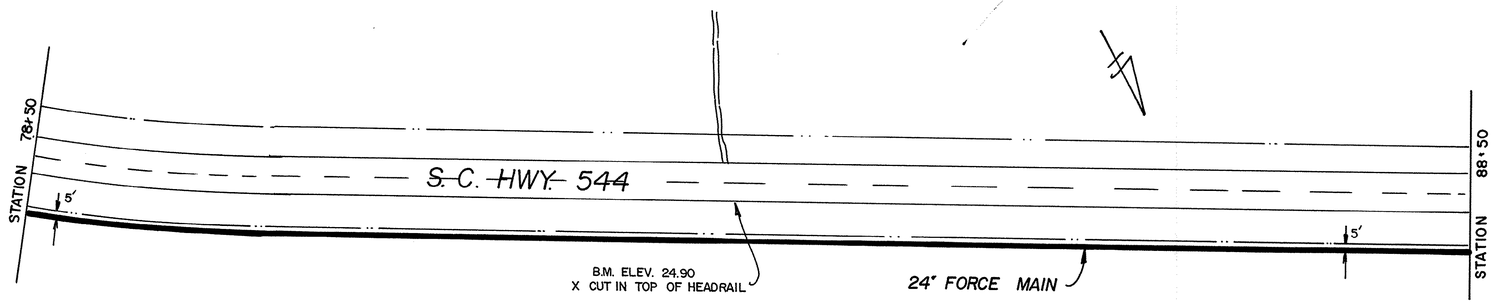
NEW 24" FORCE MAIN ALONG S.R. No. 375

SHEET NO. 17

C 450381-05



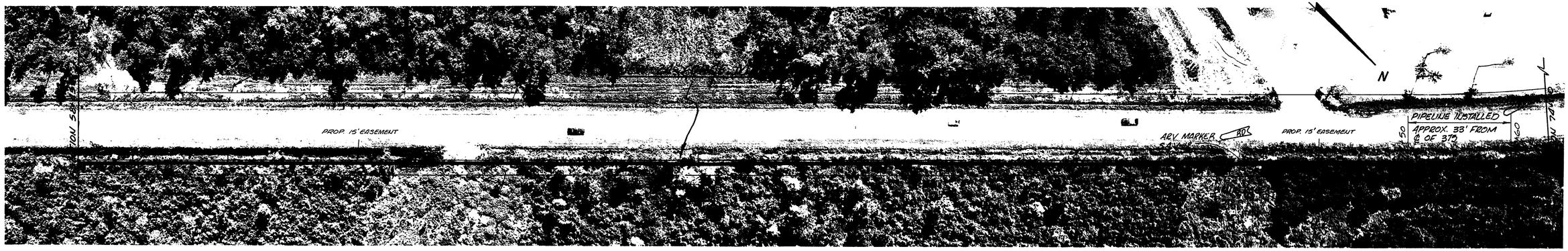



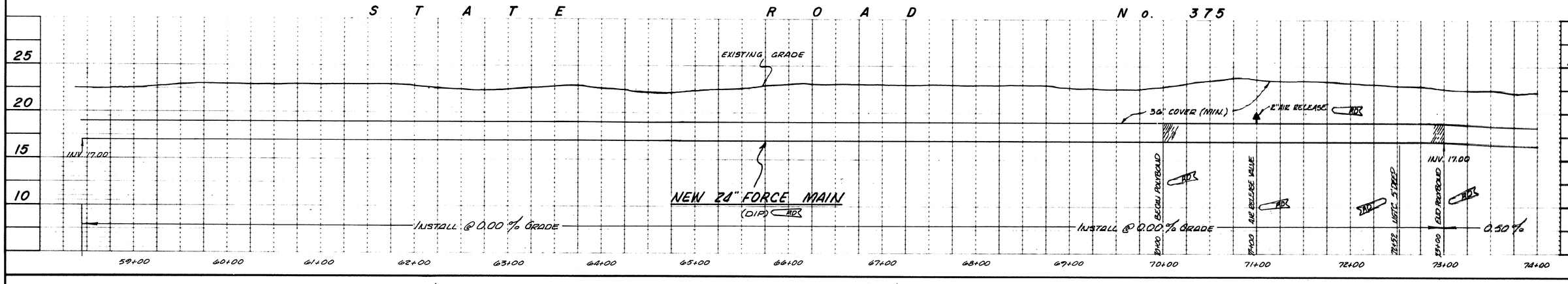



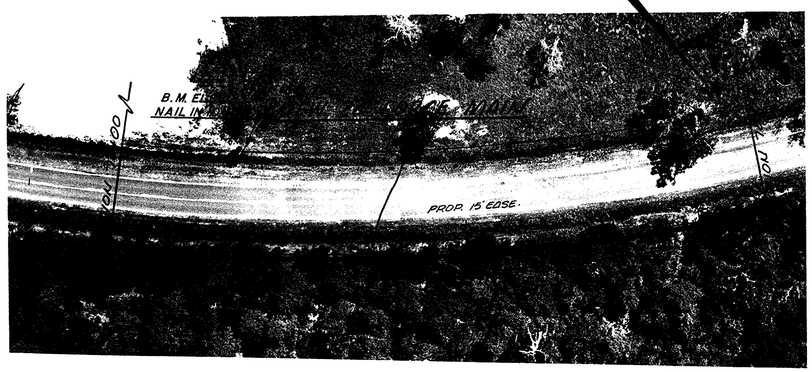

8-01-024/61-WS

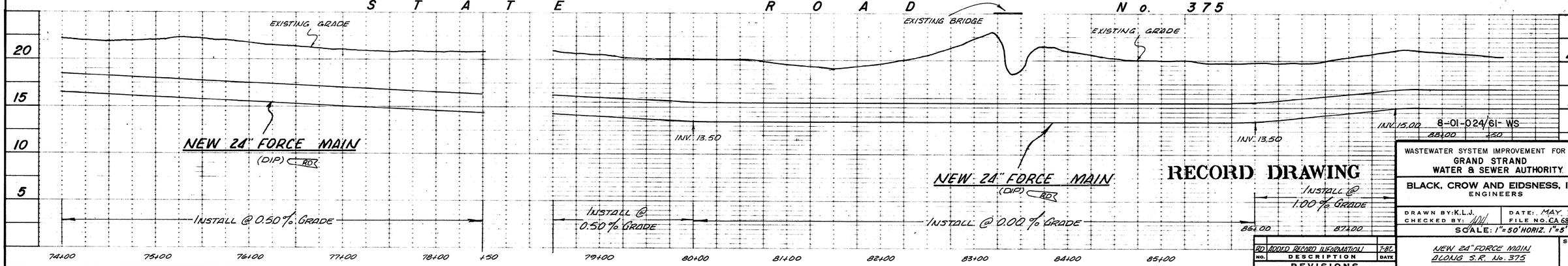
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been tracea by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 24" FORCE MAIN ALONG U.S.HWY 544 |

SHEET OF 18
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05






RECORD DRAWING

| NO. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 1 | ADDED RECORD INFORMATION | T.B.L. | |

REVISIONS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

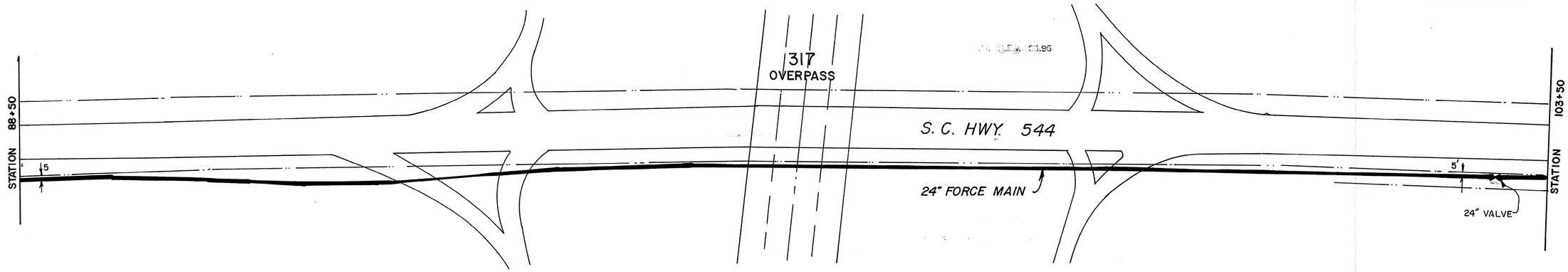
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

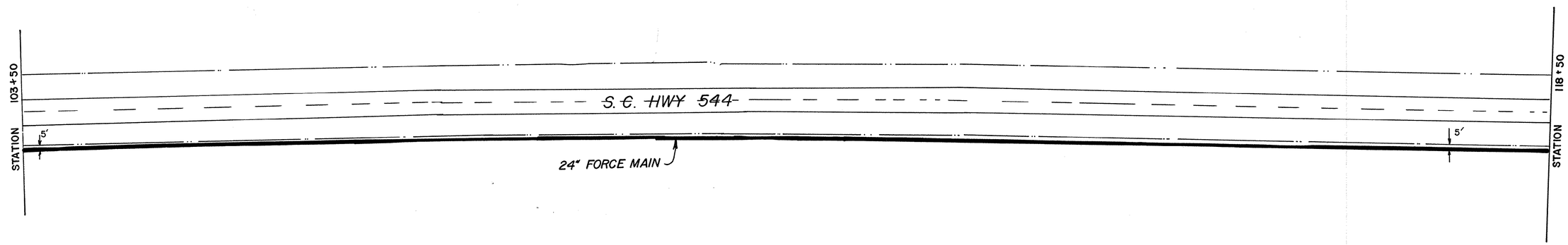
DRAWN BY: K.L.J. | DATE: MAY. 78
CHECKED BY: | FILE NO. CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 24" FORCE MAIN
ALONG S.R. No. 375

SHEET NO. 13

C 450381-05




8-01-025/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

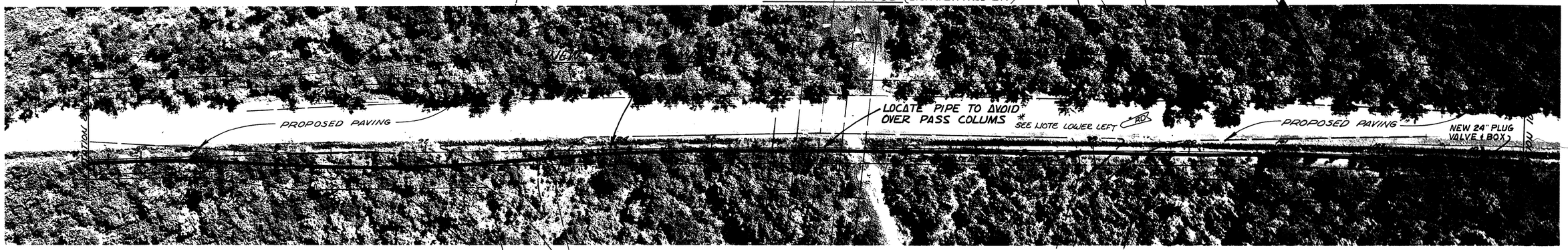
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

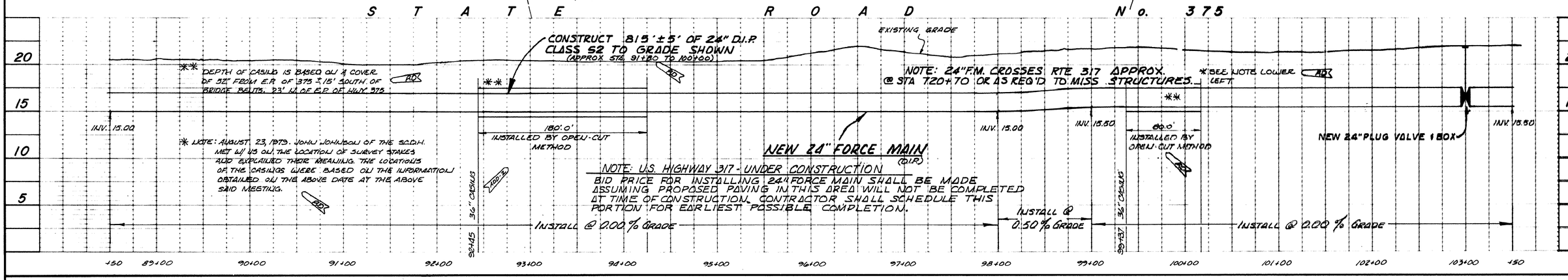
GRAND STRAND WATER & SEWER AUTHORITY

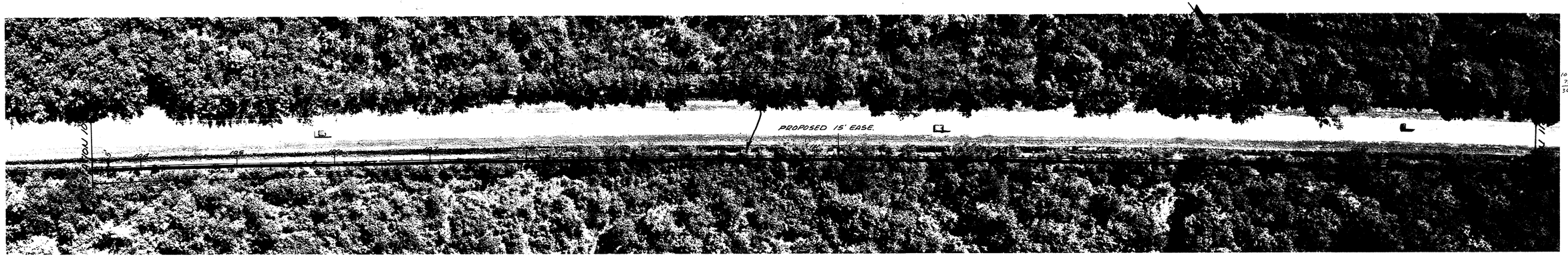
201 SEWER SYSTEM

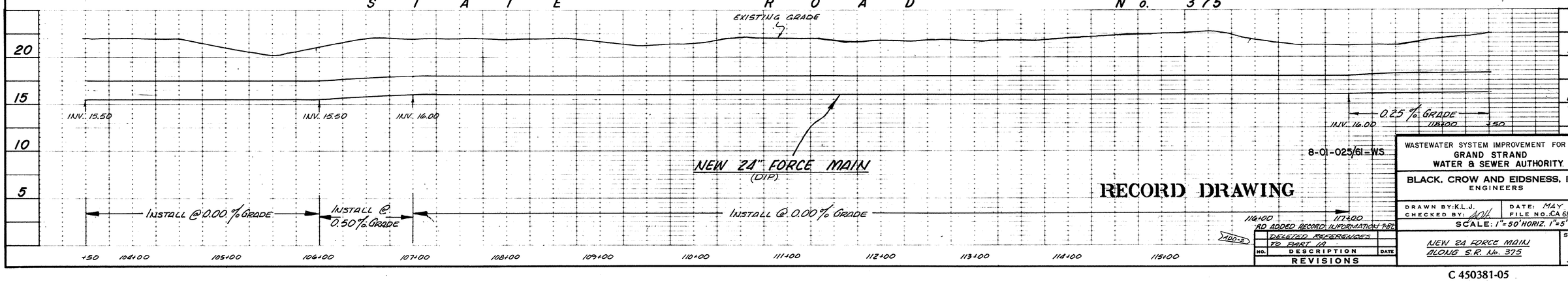
# 24" FORCE MAIN ALONG U.S.HWY 544

SHEET 19 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05




8-01-025/61-WS

**RECORD DRAWING**

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. DATE: MAY 78
CHECKED BY: FILE NO. CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

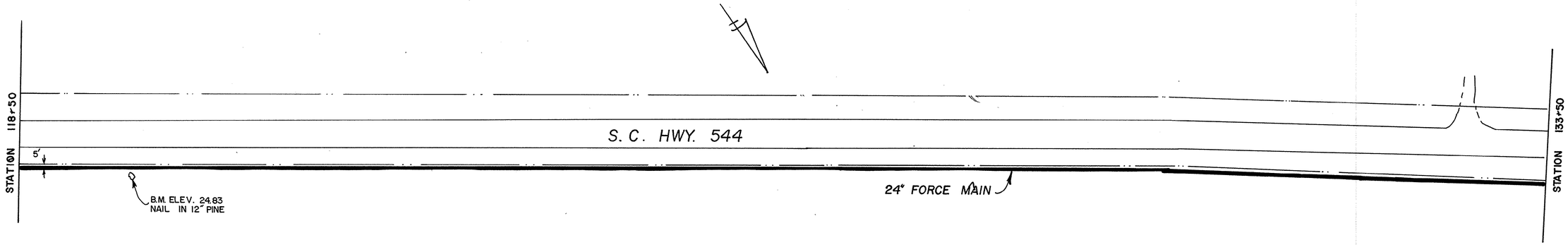
NEW 24 FORCE MAIN ALONG S.R. No. 375

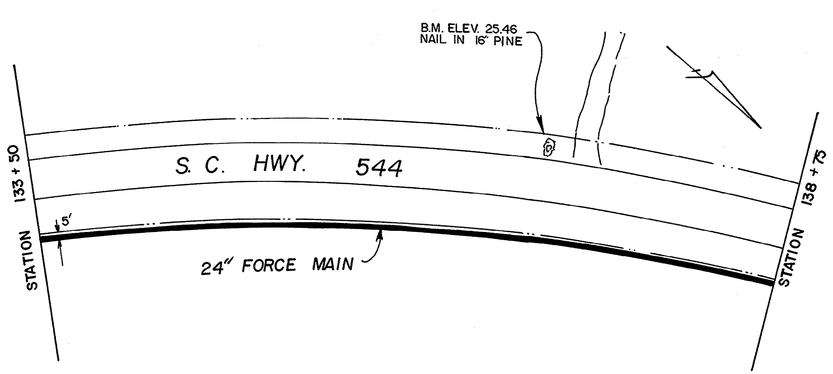
SHEET NO. 19

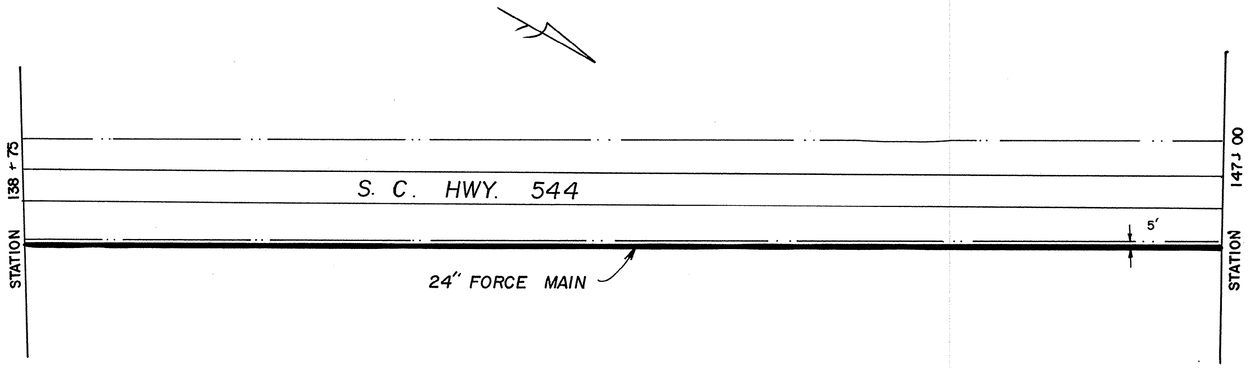
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | DELETED REFERENCES TO PART 1A | |
| | ADDED RECORD INFORMATION | 4-80 |

REVISIONS

C 450381-05




8-01-026/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

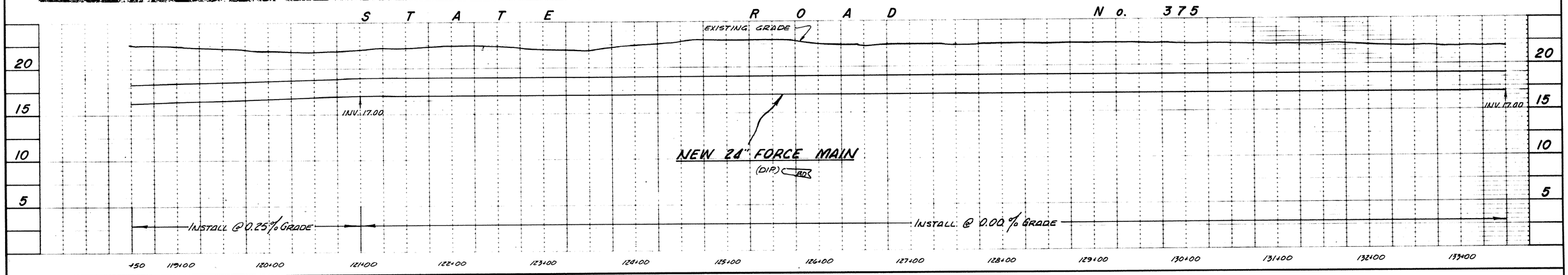
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

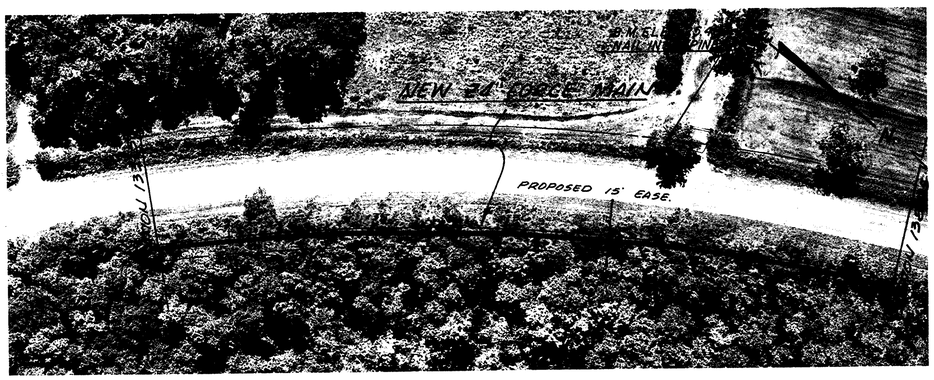
GRAND STRAND WATER & SEWER AUTHORITY

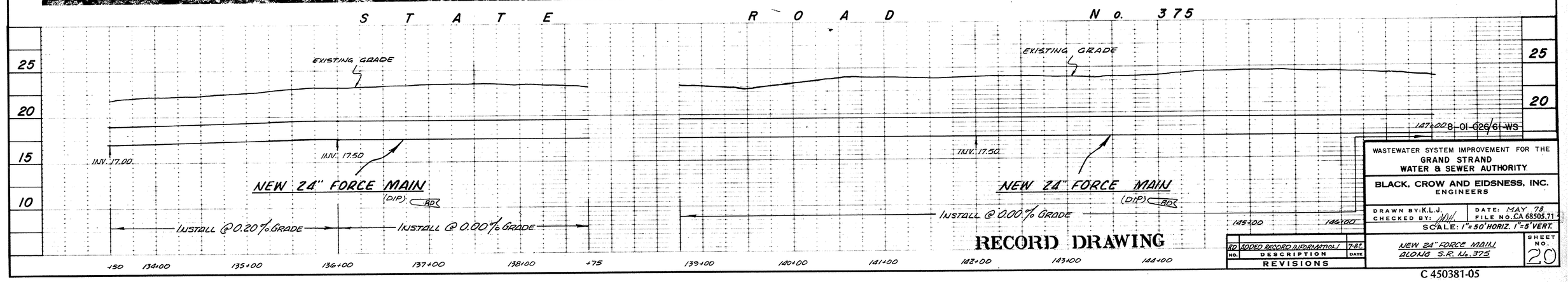
201 SEWER SYSTEM

# 24" FORCE MAIN ALONG U.S.HWY 544

SHEET 20 OF
DATE May-78 Traced 01-86
CA 68505.71
C 450381-05






8-01-026/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. DATE: MAY 78
CHECKED BY: FILE NO. CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

**RECORD DRAWING**

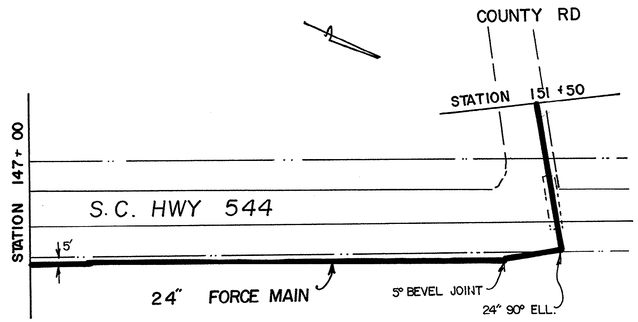
| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | ADDED RECORD INFORMATION | 7-81 |

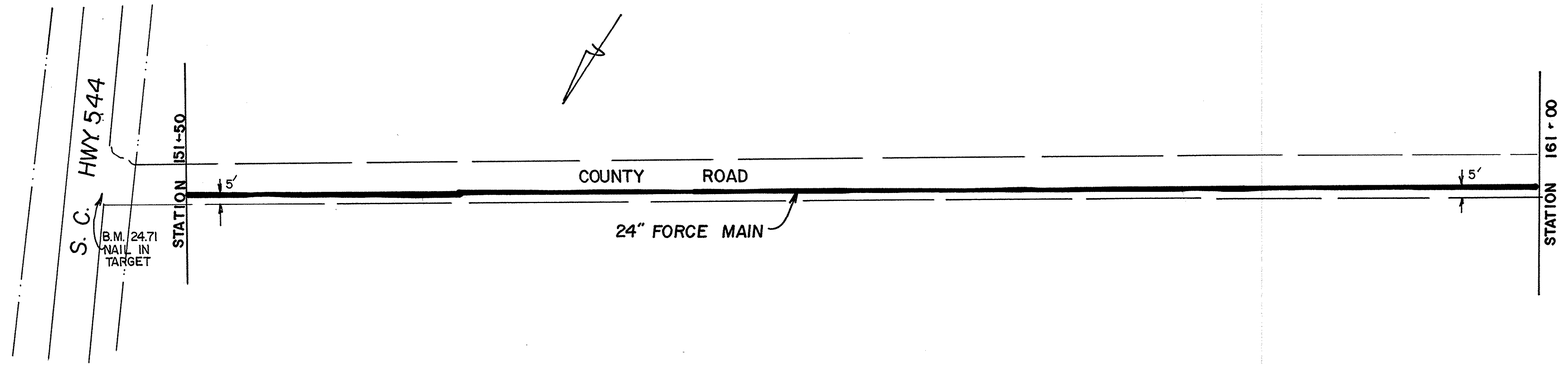
REVISIONS

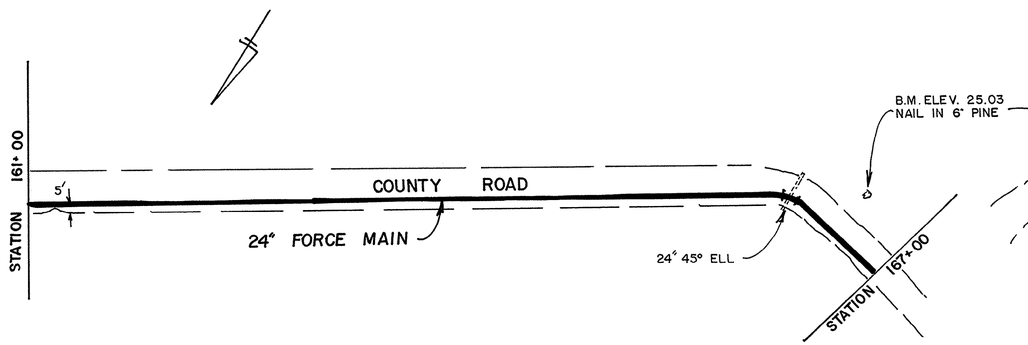
NEW 24" FORCE MAIN ALONG S.R. No. 375

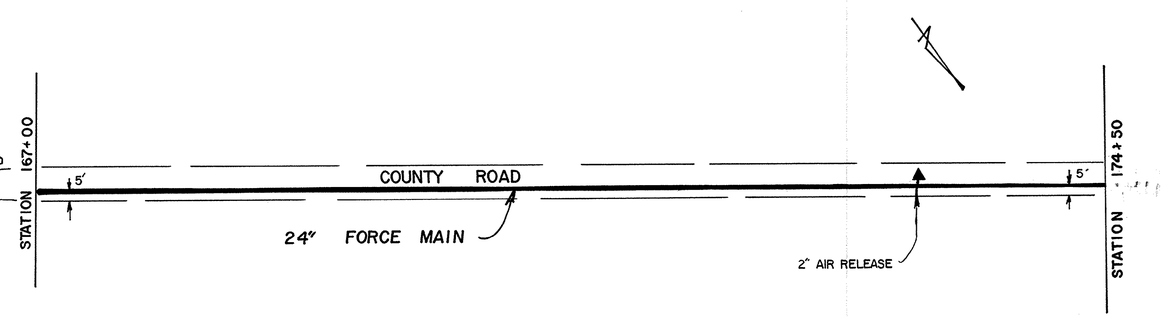
SHEET NO. 20

C 450381-05




8-01-027/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

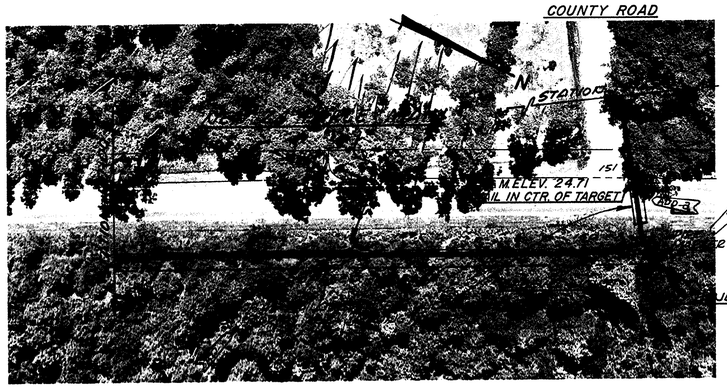
GRAND STRAND WATER & SEWER AUTHORITY

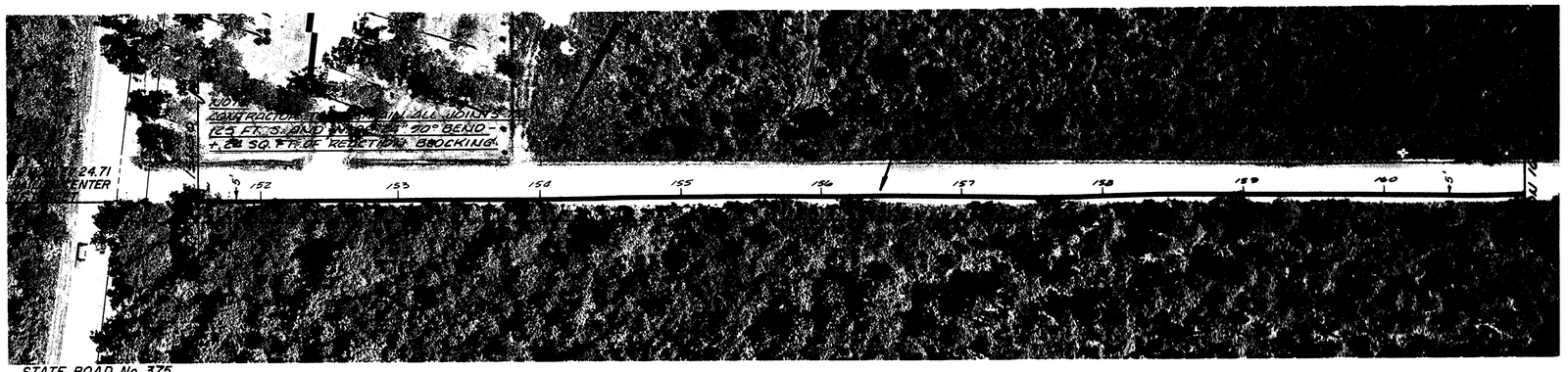
201 SEWER SYSTEM

24" FORCE MAIN ALONG U.S.HWY 544

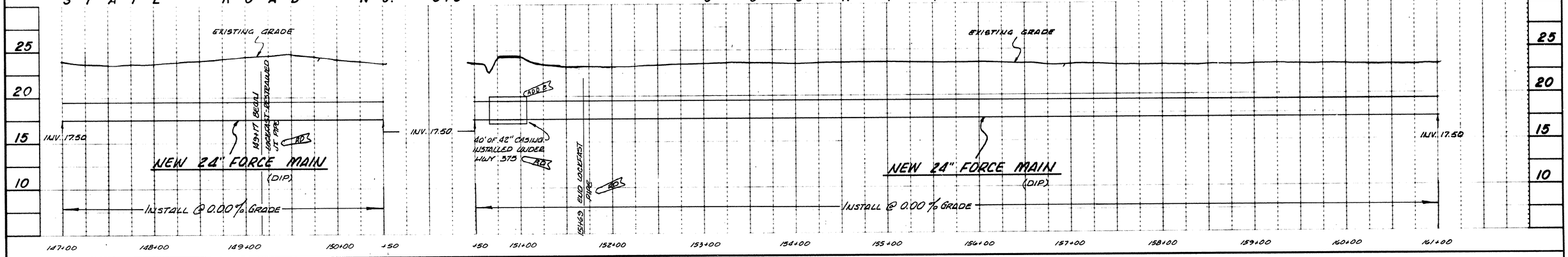
SHEET 21 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05

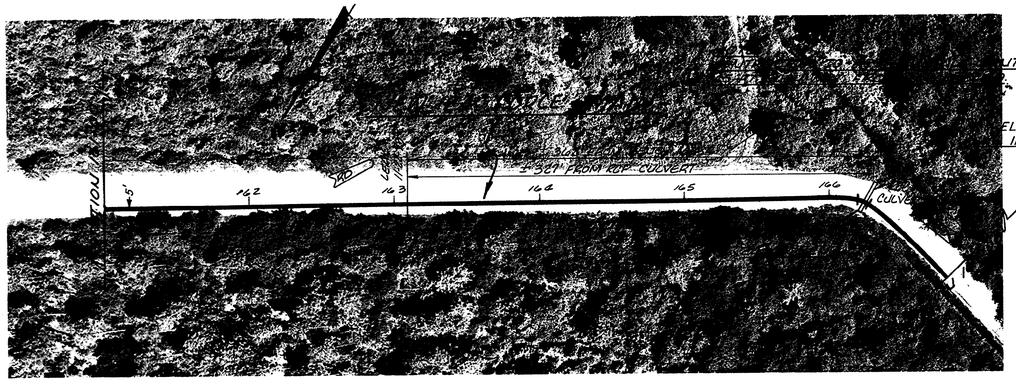
COUNTY ROAD

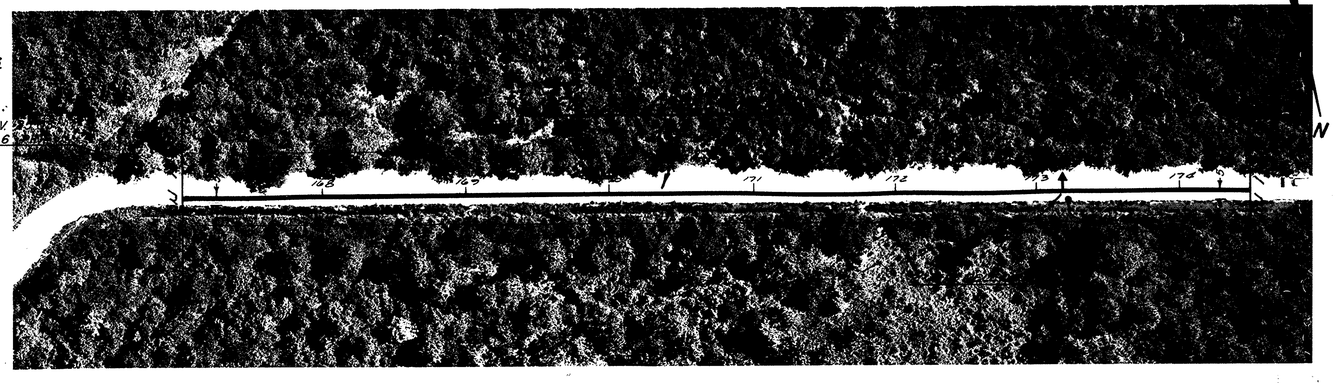


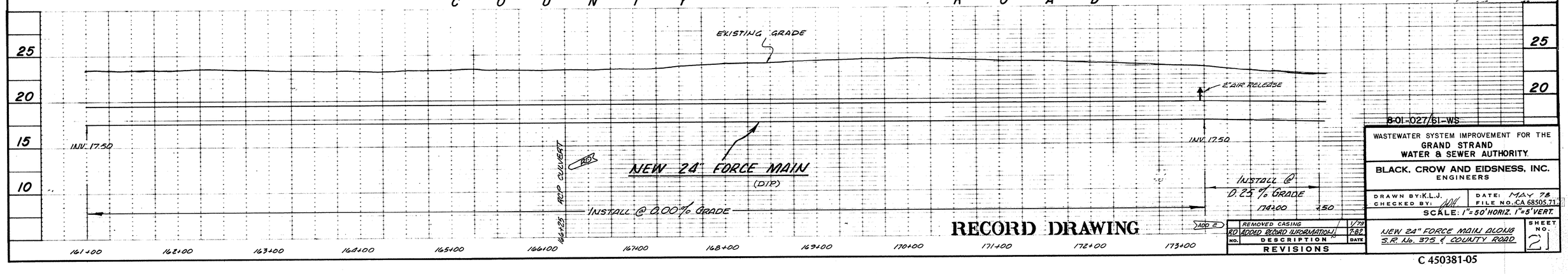




STATE ROAD No. 375




RECORD DRAWING

| NO. | REVISIONS DESCRIPTION | DATE |
|---|---|---|
| | REMOVED CASING | 1/79 |
| RD | ADDED RECORD INFORMATION | 7-82 |

8-01-027/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

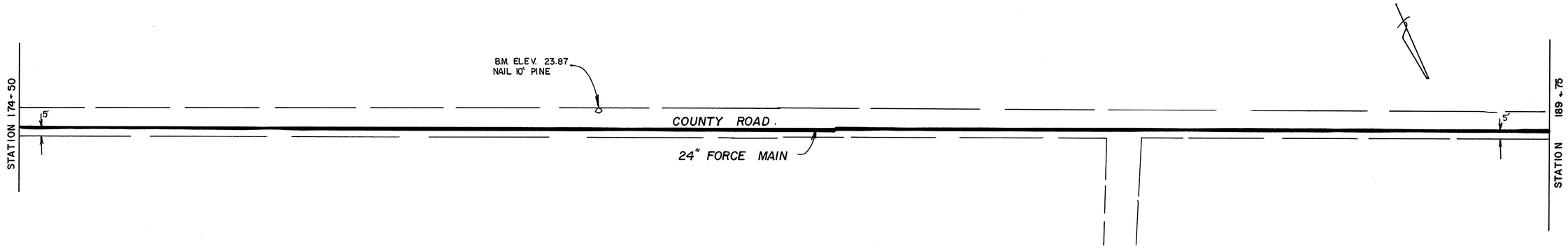
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

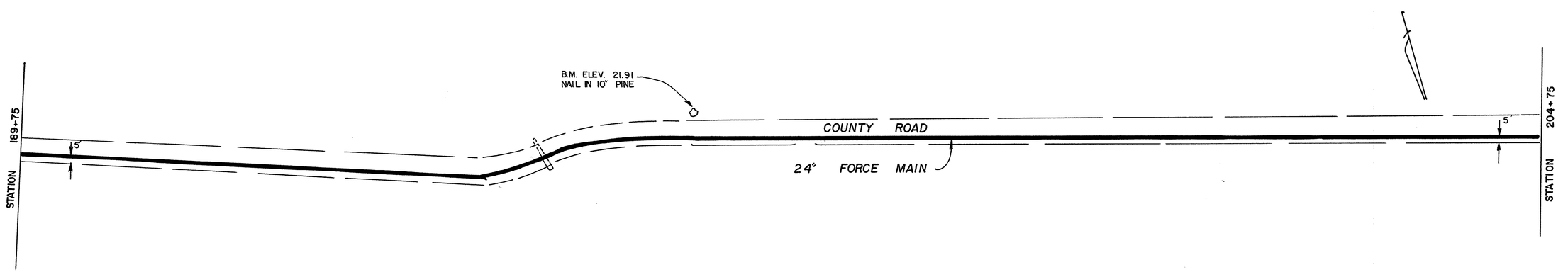
DRAWN BY: K.L.J. DATE: MAY 78
CHECKED BY: FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 24" FORCE MAIN ALONG S.R. No. 375 & COUNTY ROAD

SHEET NO. 2

C 450381-05




8-01-028/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

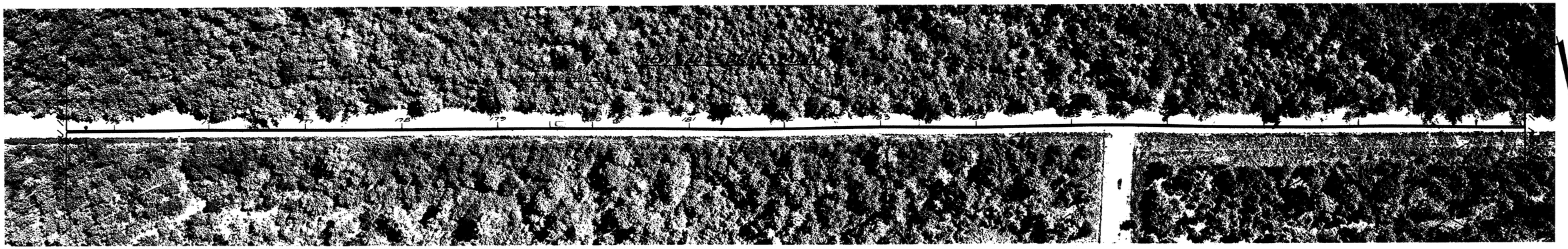
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

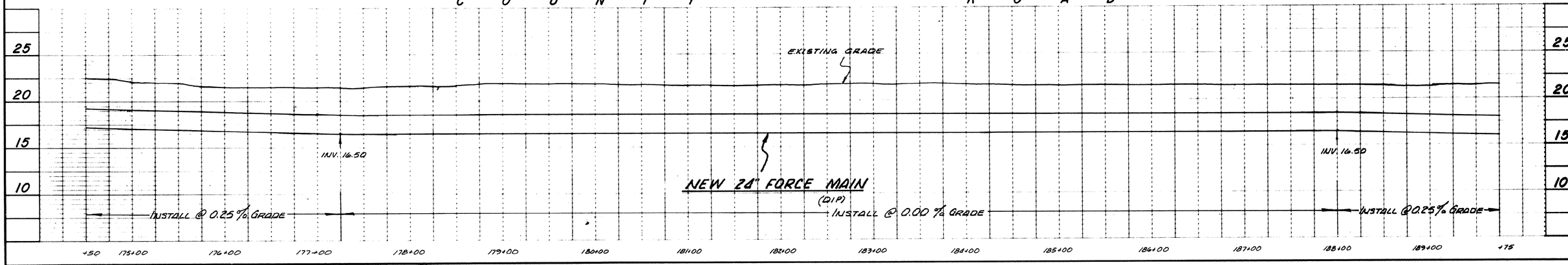
201 SEWER SYSTEM

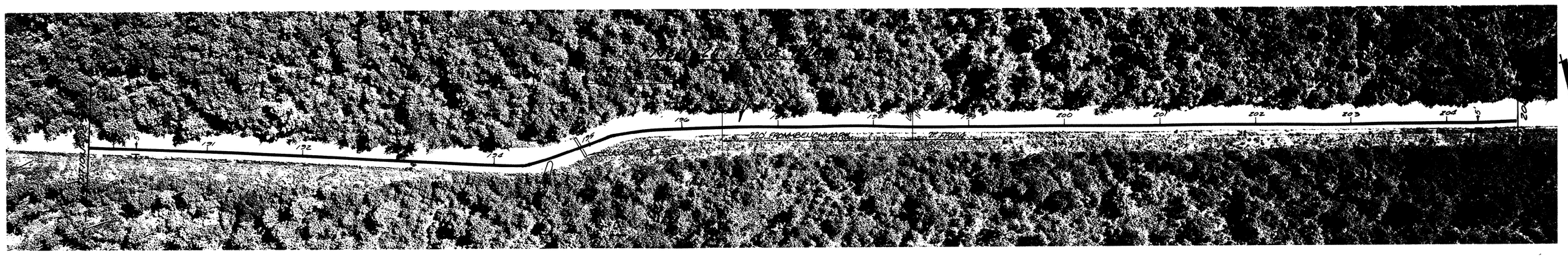
# 24" FORCE MAIN ALONG COUNTY ROAD

SHEET 22 OF
DATE May—78
Traced 01-86
CA 68505.71
C 450381-05

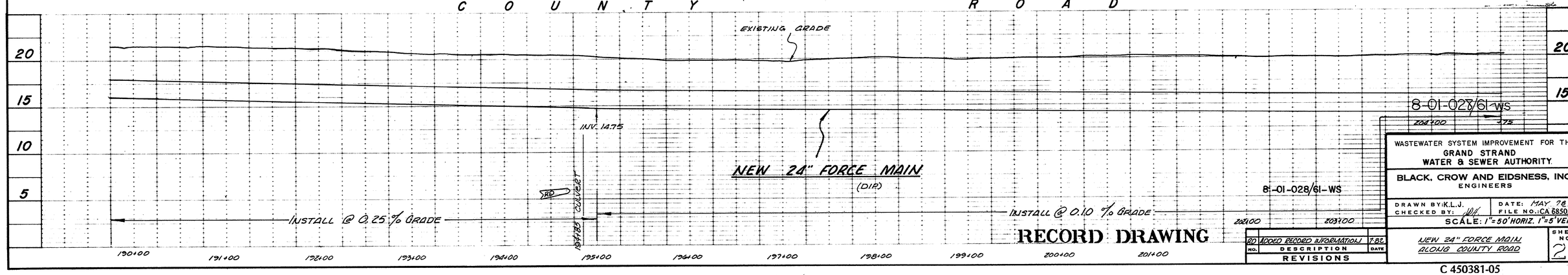



C O U N T Y  R O A D




C O U N T Y  R O A D




8-01-028/61-WS

RECORD DRAWING

| NO. | REVISIONS DESCRIPTION | DATE |
|---|---|---|
| 10 | ADDED RECORD INFORMATION | 7-82 |

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

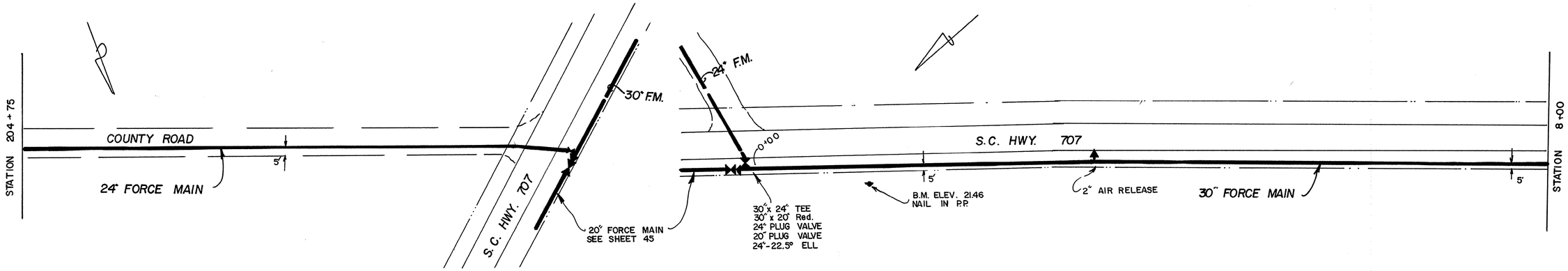
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

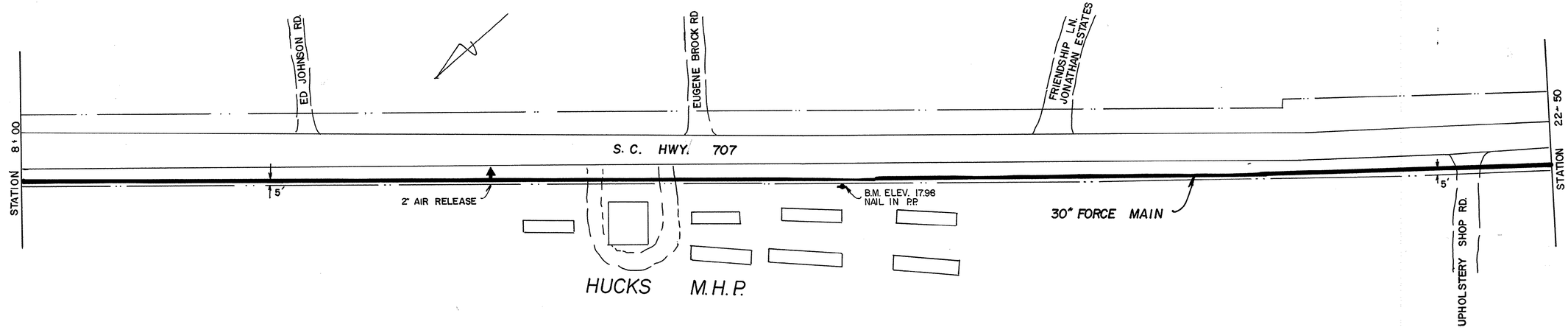
DRAWN BY: K.L.J. DATE: MAY 78
CHECKED BY: FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 24" FORCE MAIN ALONG COUNTY ROAD

SHEET NO. 22

C 450381-05




8-01-029/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

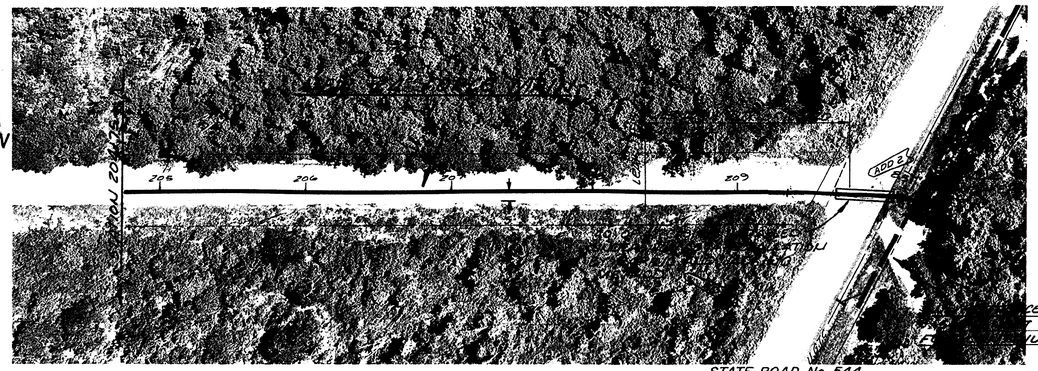
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

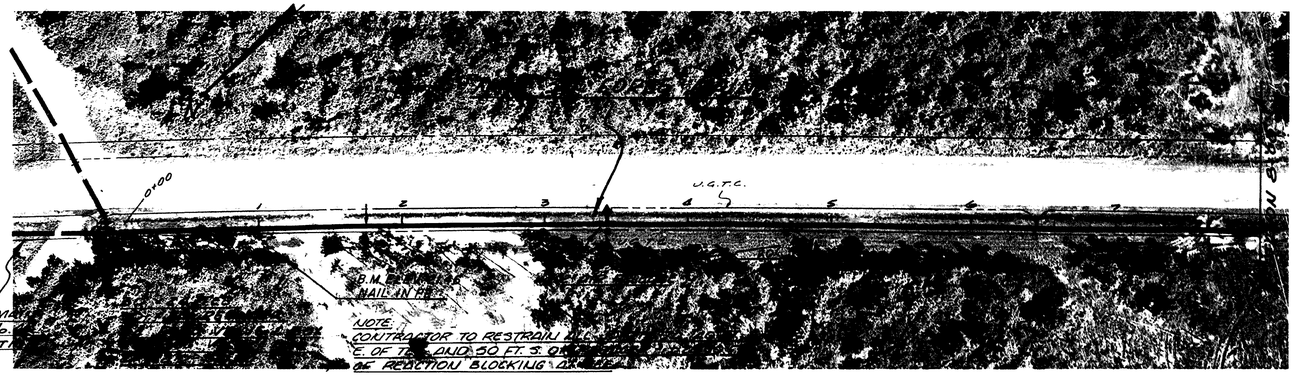
GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

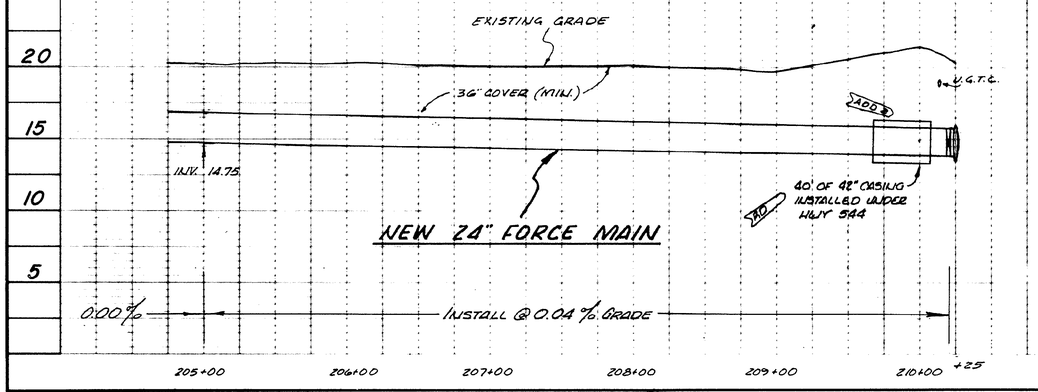
# 24" FORCE MAIN ON COUNTY RD. & 707

SHEET OF 23
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05

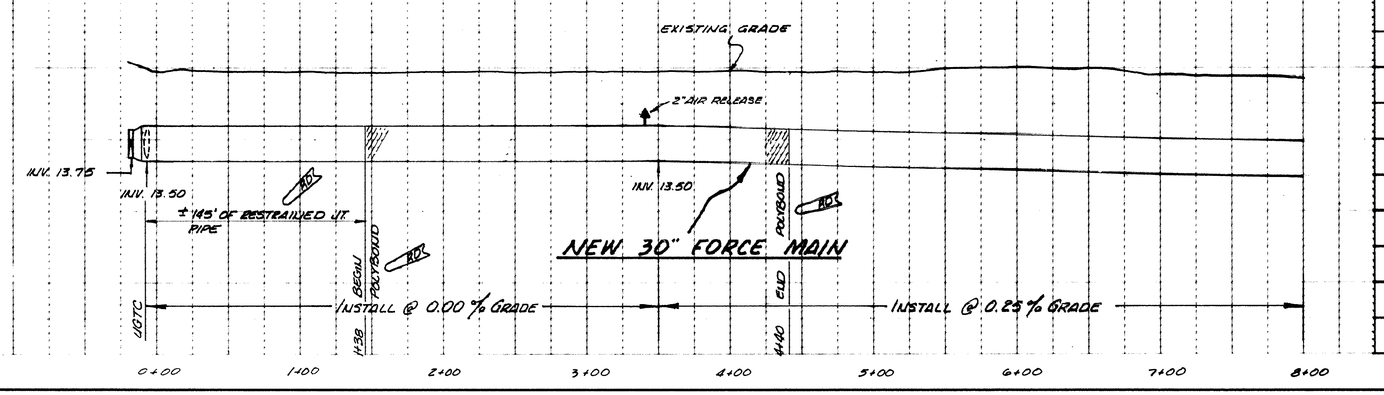


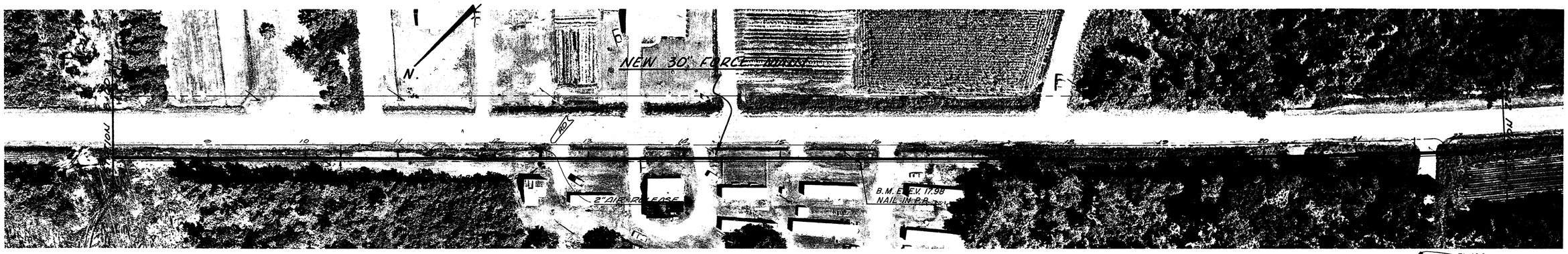




## C O U N T Y R O A D

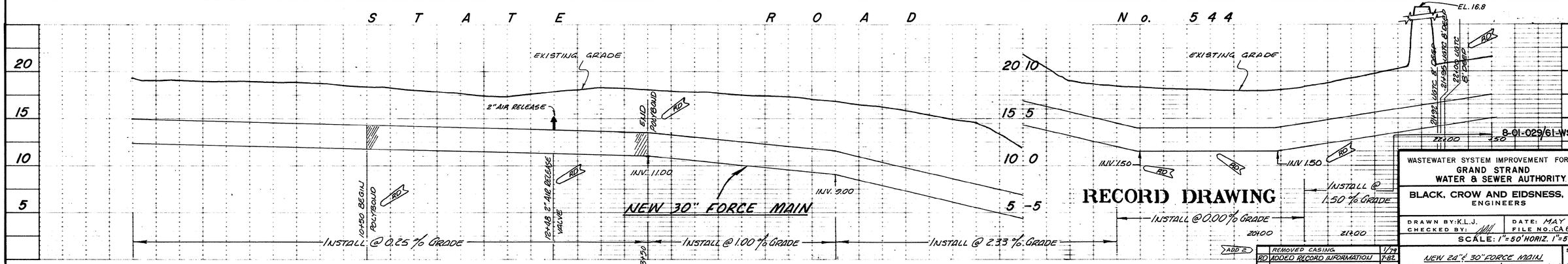



## S T A T E R O A D N o. 5 4 4




## S T A T E R O A D N o. 5 4 4




8-01-029/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: | FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

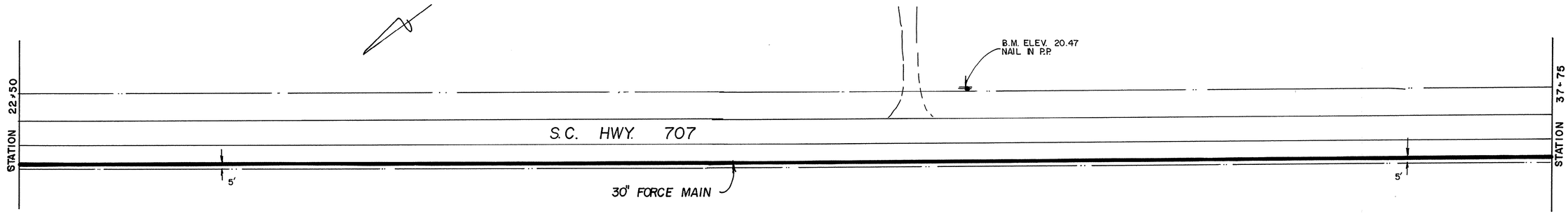
NEW 24" & 30" FORCE MAIN ALONG COUNTY RD. & S.R. No. 544

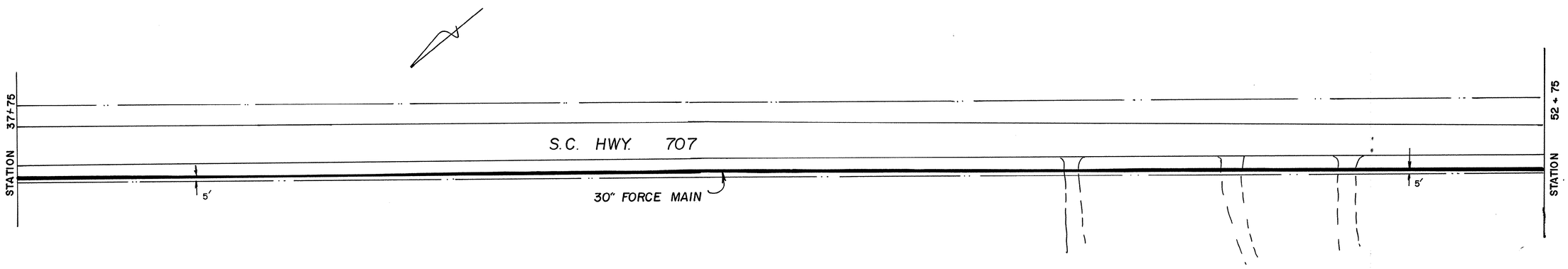
SHEET NO. 23

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| | REMOVED CASING | 1/79 |
| RD | ADDED RECORD INFORMATION | 7-82 |

ADD 2

C 450381-05




8-01-030/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

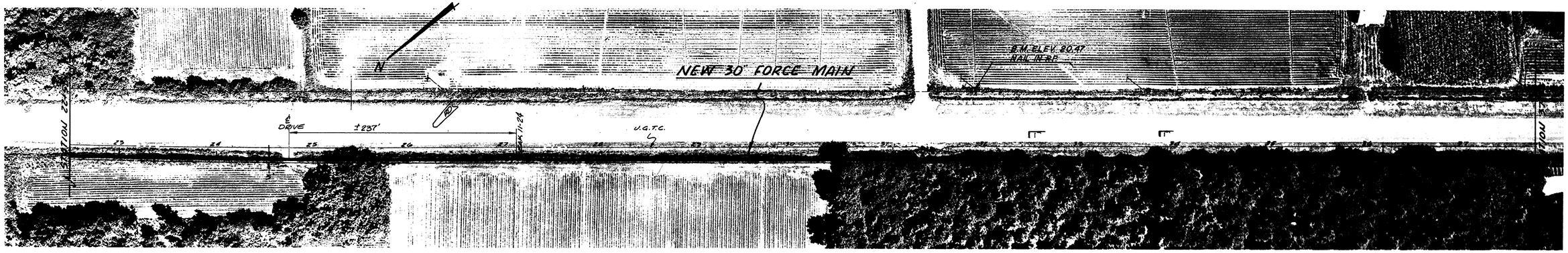
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

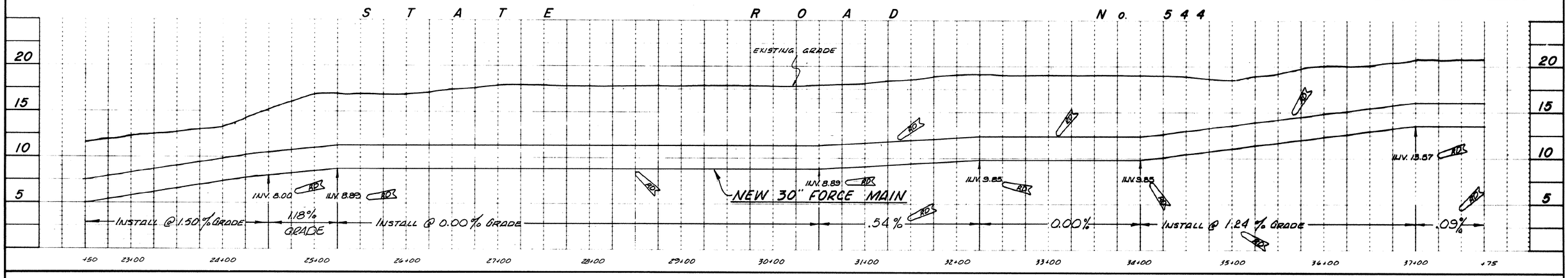
GRAND STRAND WATER & SEWER AUTHORITY

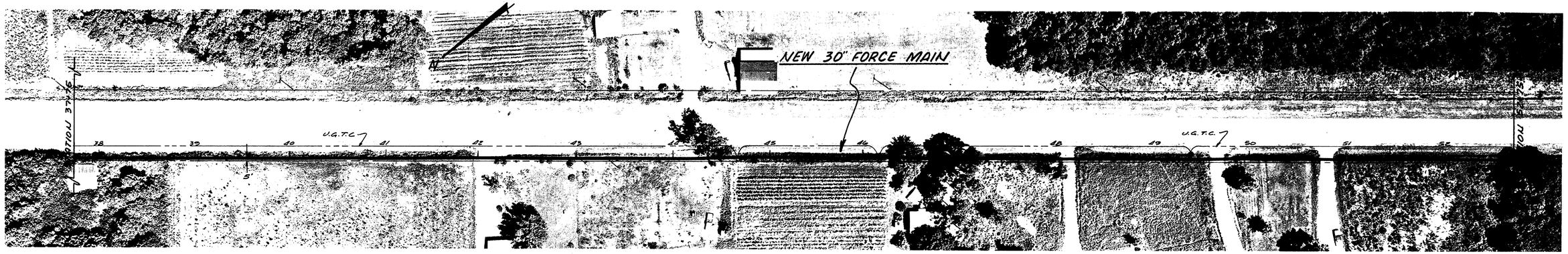
201 SEWER SYSTEM

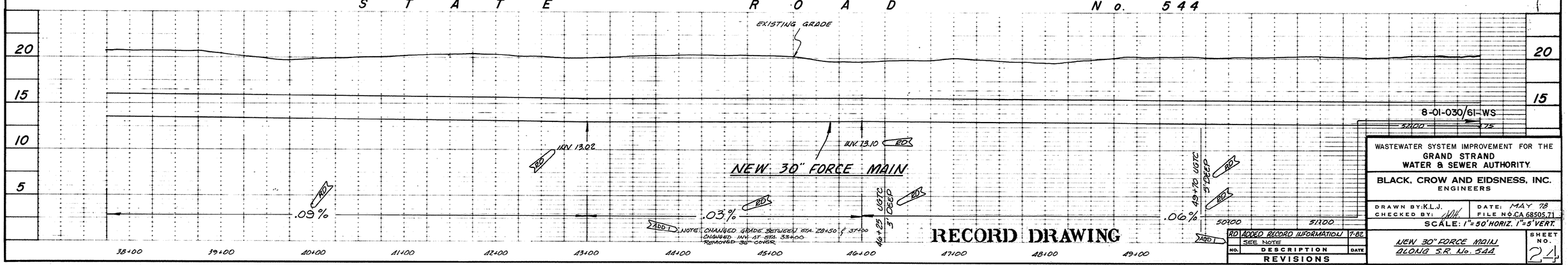
# 30" FORCE MAIN ALONG U.S.707

SHEET 24 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05




8-01-030/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: | FILE NO. CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

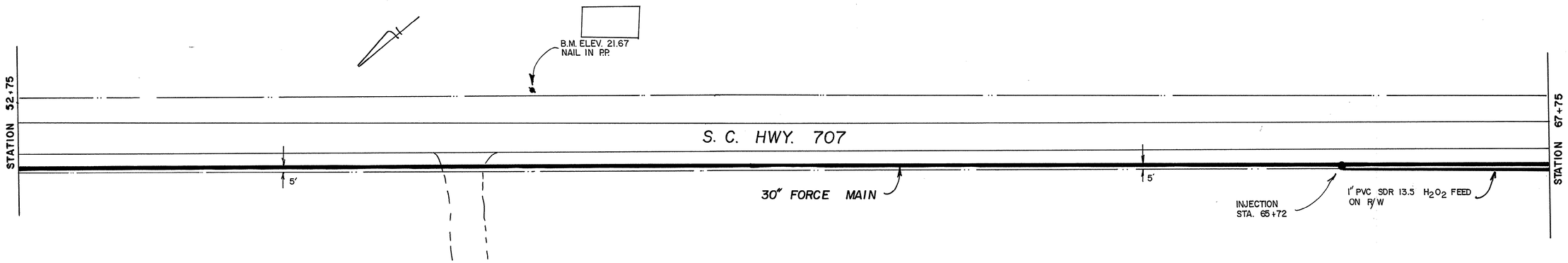
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | SEE NOTE | |
| | REVISIONS | |

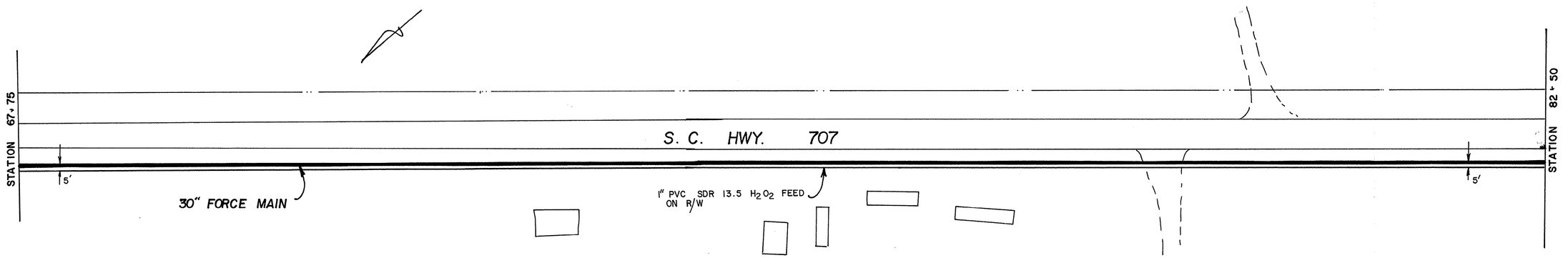
RD ADDED RECORD INFORMATION 7-82

NEW 30" FORCE MAIN ALONG S.R. No. 544

SHEET NO. 24

C 450381-05

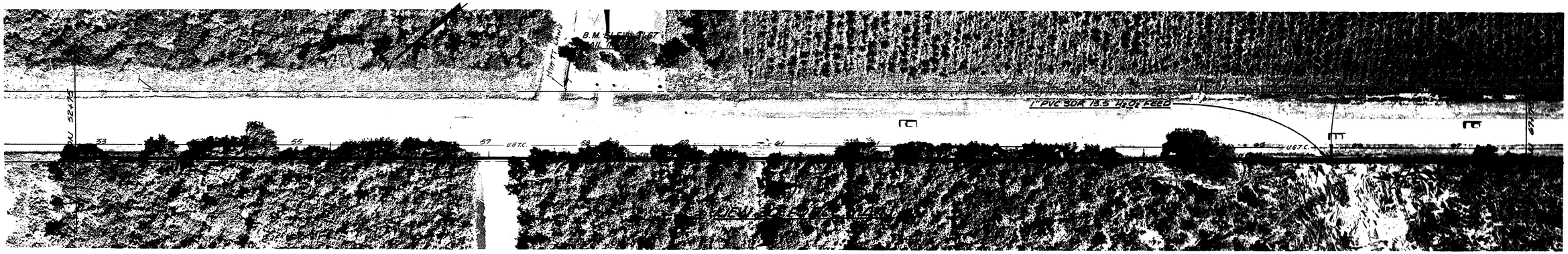


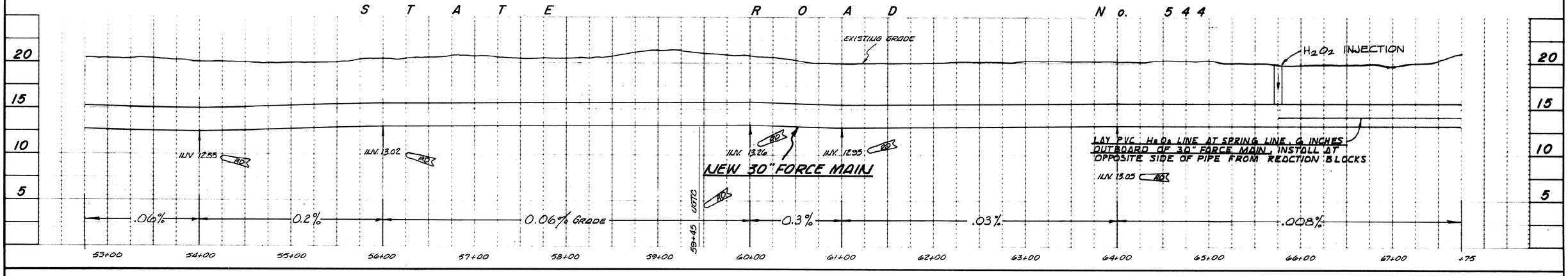



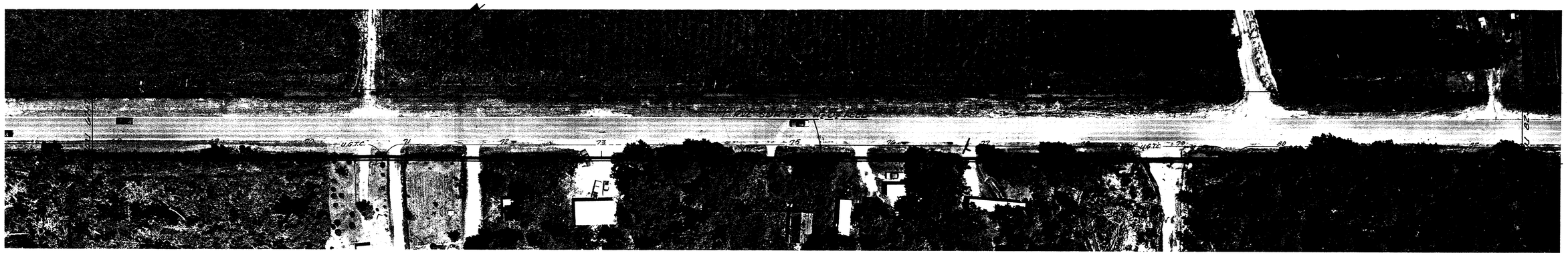

8-01-031/61-WS

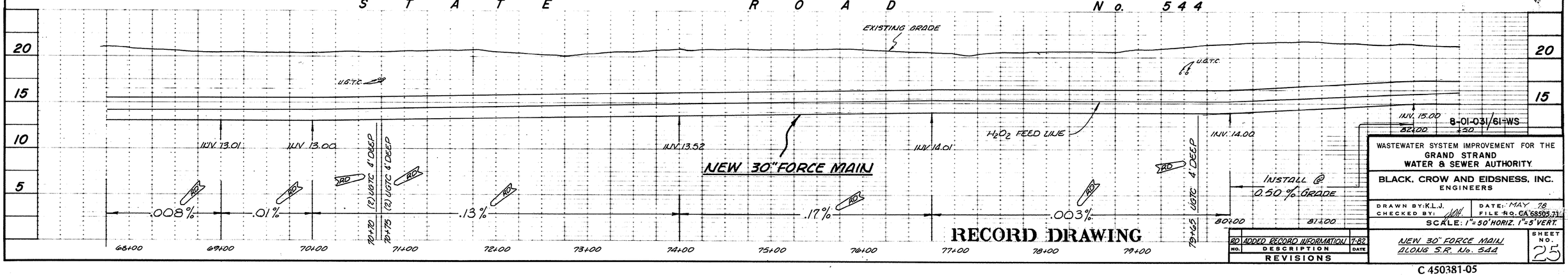
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 30" FORCE MAIN ALONG U.S.707 |

SHEET 25 OF
DATE May—78
Traced 01-86
CA 68505.71
C 450381-05




8-01-031/61-WS
±50

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

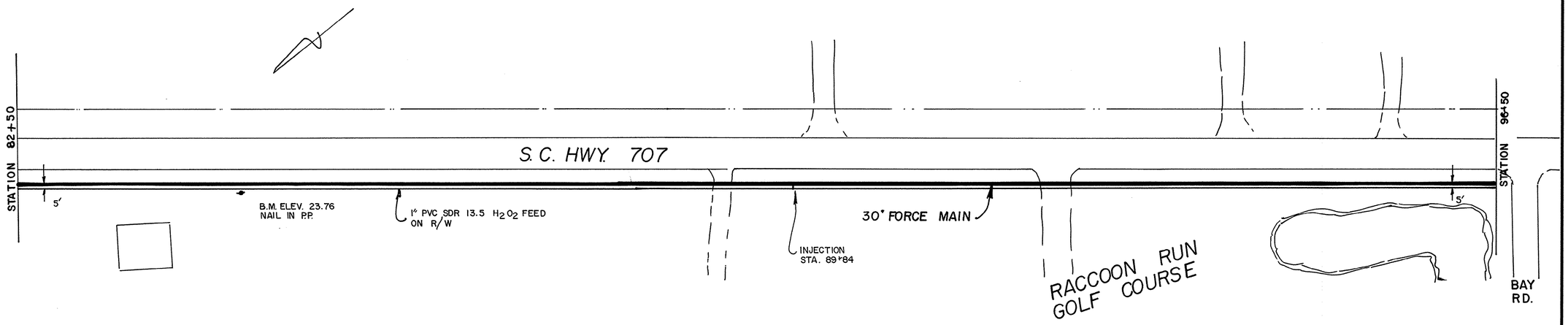
DRAWN BY: K.L.J. | DATE: MAY 78
CHECKED BY: | FILE NO. CA 68505.73
SCALE: 1"=50' HORIZ. 1"=5' VERT.

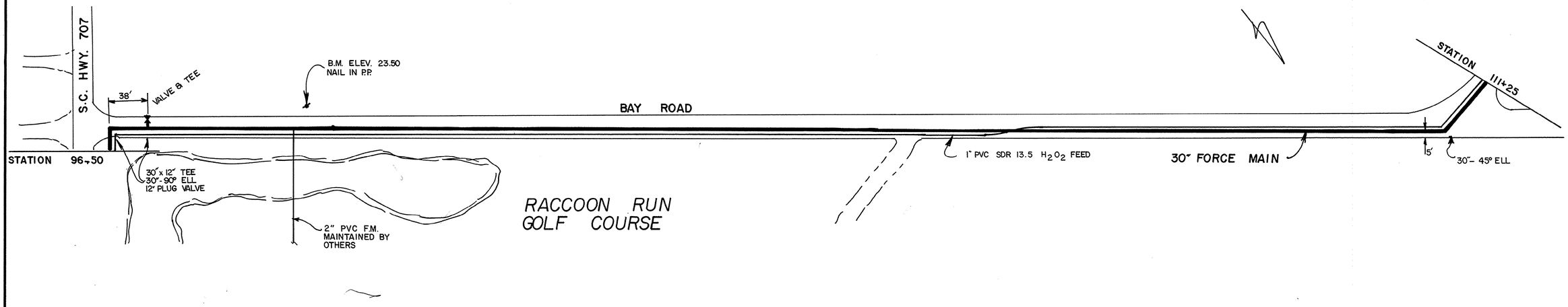
| NO. | REVISIONS DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 7-82 |

NEW 30" FORCE MAIN ALONG S.R. No. 544

SHEET NO. 25

C 450381-05




8-01-032/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

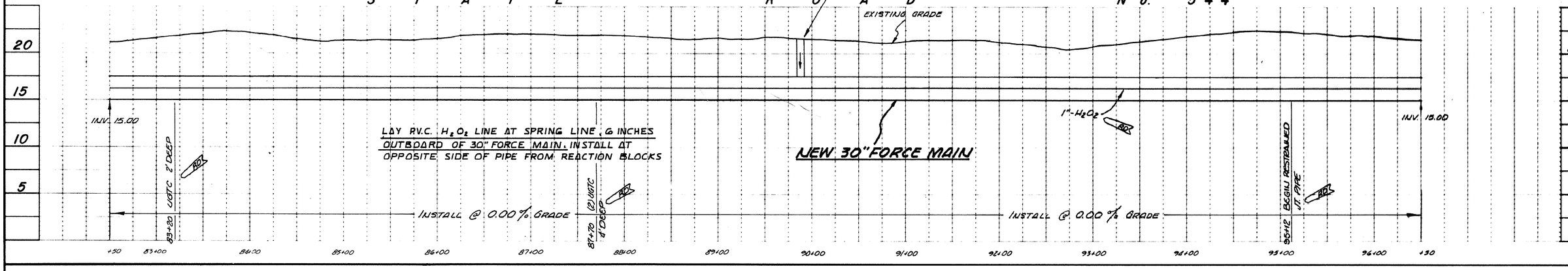
GRAND STRAND WATER & SEWER AUTHORITY

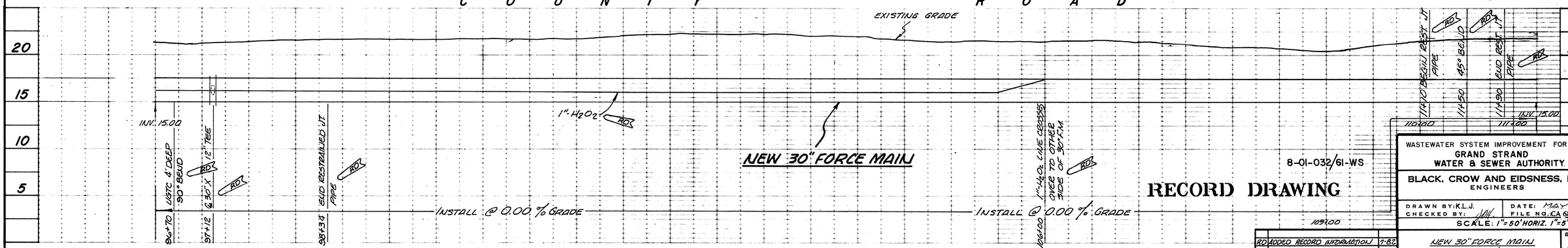
201 SEWER SYSTEM

# 30" FORCE MAIN ALONG U.S.707

SHEET 26 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05

STATE ROAD No. 544






WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

8-01-032/61-WS

**RECORD DRAWING**

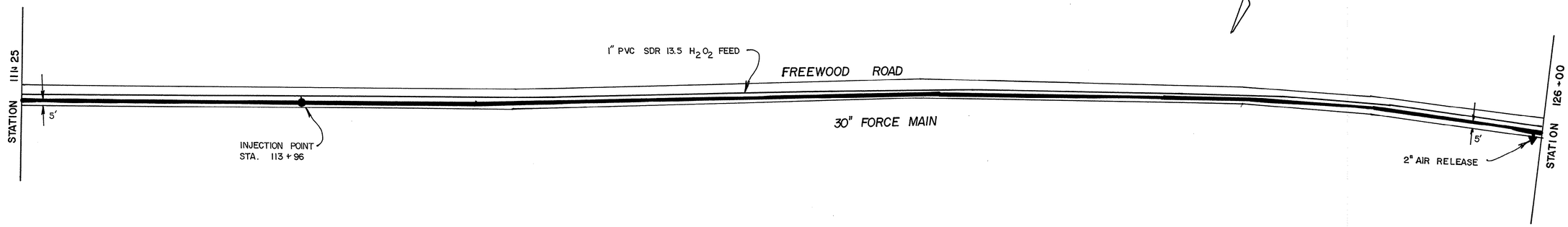
| DRAWN BY: K.L.J. | DATE: MAY 78 |
|---|---|
| CHECKED BY: | FILE NO. CA 6850S.71 |

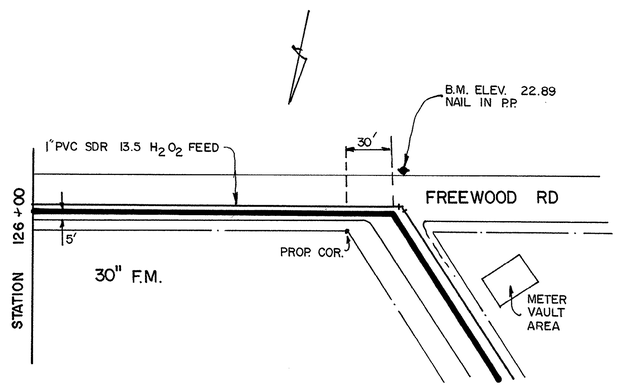
SCALE: 1"=50' HORIZ. 1"=5' VERT.

| NO. | DESCRIPTION | DATE |
|---|---|---|
| REVISIONS | | |
| RD | ADDED RECORD INFORMATION | 7-82 |

NEW 30" FORCE MAIN ALONG S.R. No. 544 & COUNTY RD.

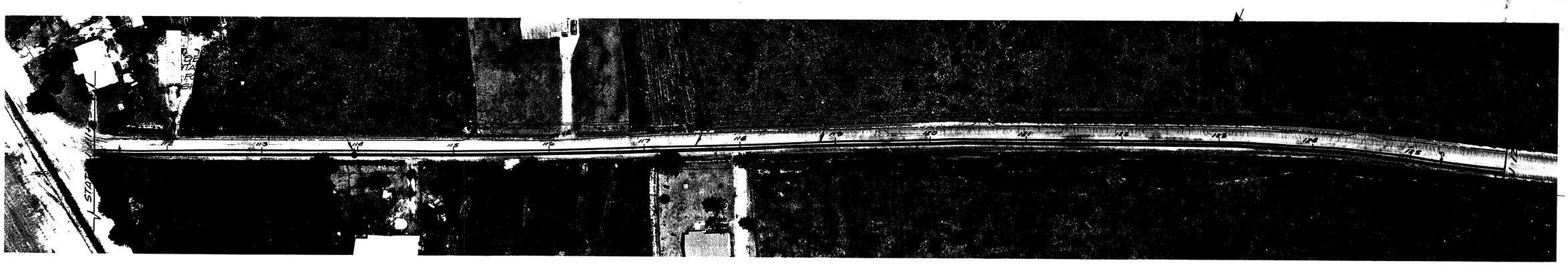
SHEET NO. 28

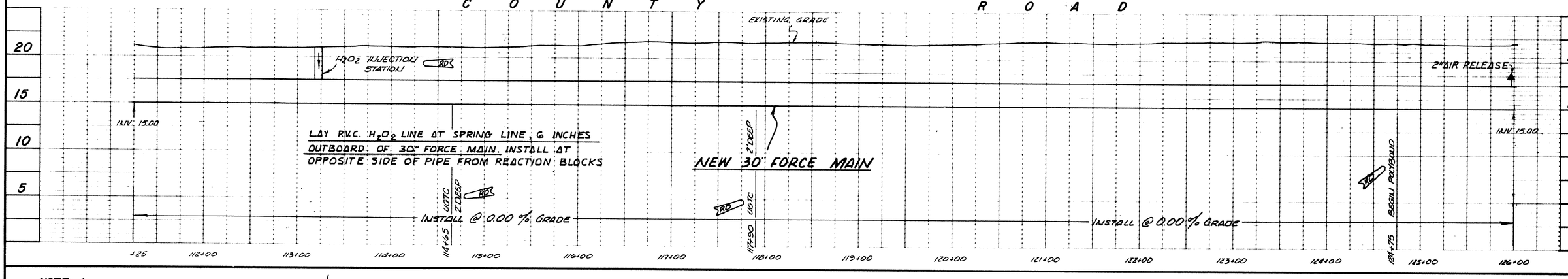


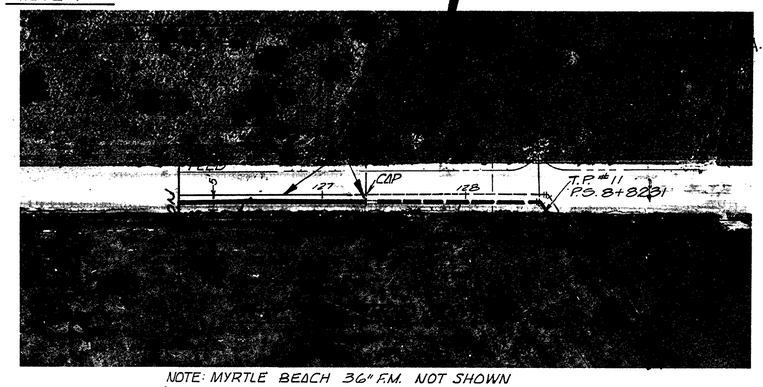

8-01-033/61-WS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100<br>Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 30" FORCE MAIN ALONG COUNTY ROAD | SHEET 27 OF<br>DATE May--78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |

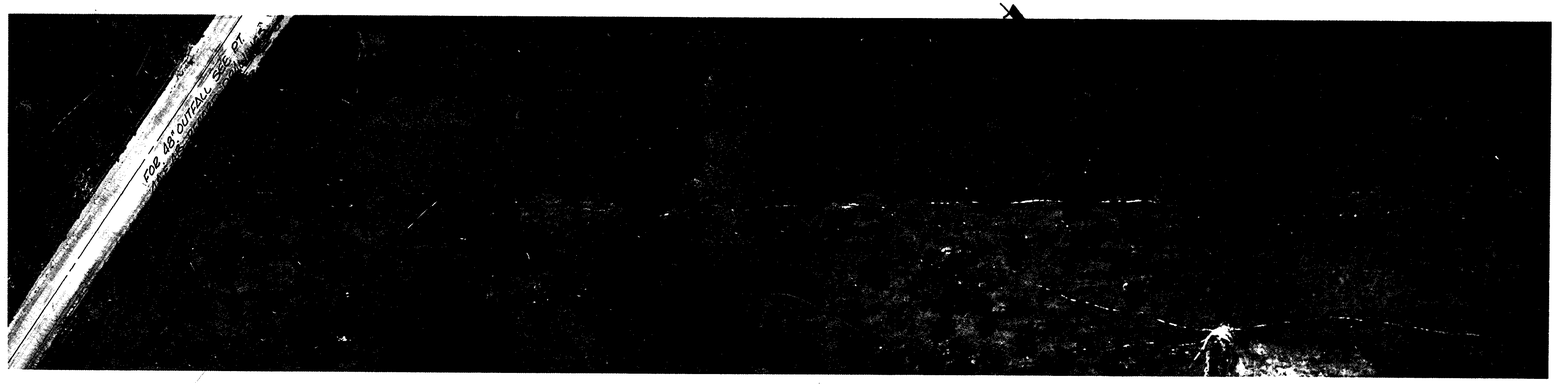


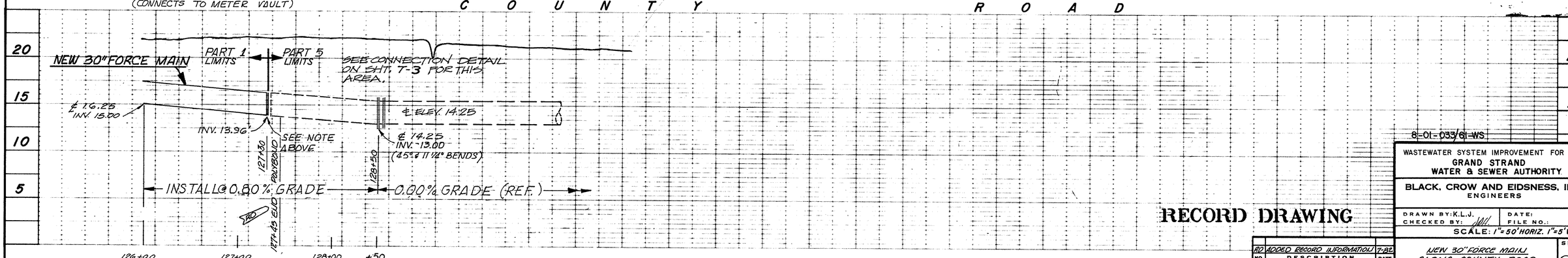



NOTE: 1




NOTE: MYRTLE BEACH 36" F.M. NOT SHOWN (CONNECTS TO METER VAULT)




8-01-033/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 10 | ADDED RECORD INFORMATION | 7-82 |

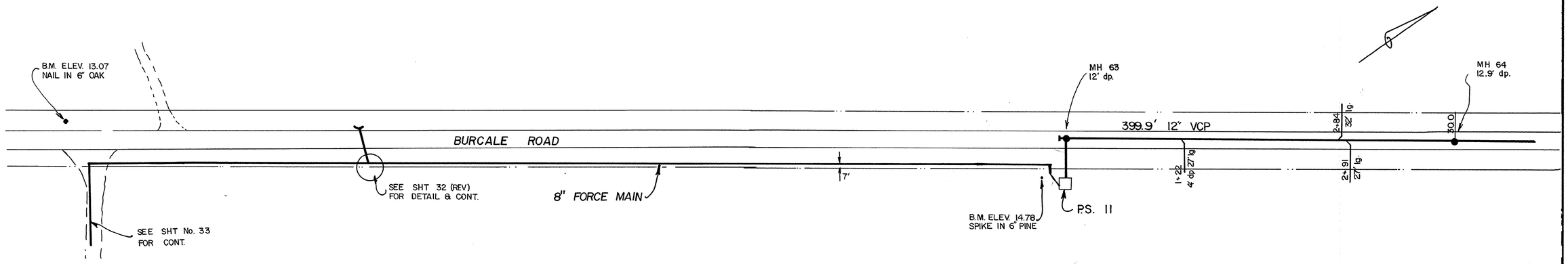
REVISIONS

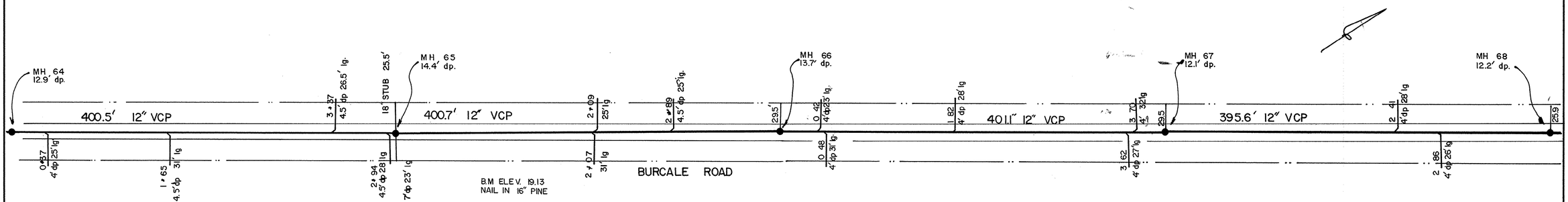
DRAWN BY: K.L.J. | DATE:
CHECKED BY: | FILE NO.:
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 30" FORCE MAIN ALONG COUNTY ROAD

SHEET NO. 27

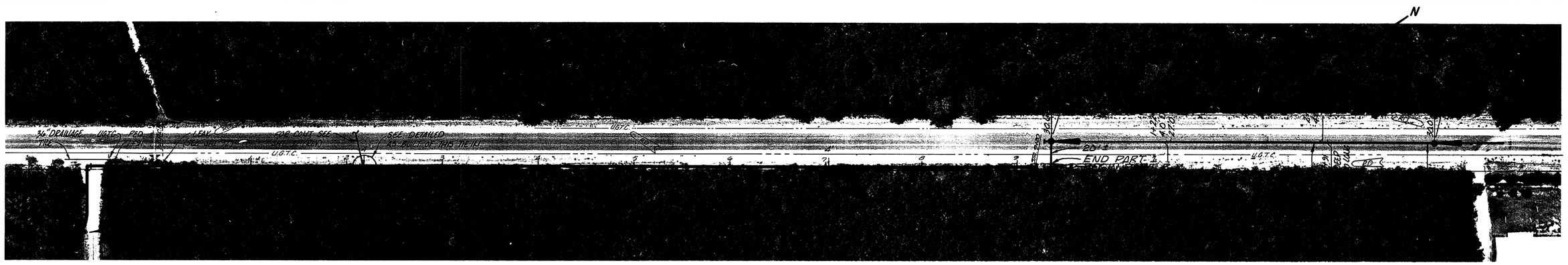
C 450381-05




8-01-034/61-WS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100<br>Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 8" F.M. & 12" GRAVITY ALONG BURCALE ROAD | SHEET OF 28<br>DATE May-78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |




1. BURCALE ROAD SHALL BE REPAVED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE SOUTH CAROLINA DEPT OF HIGHWAY AND PUBLIC TRANSPORTATION.
2. PROVIDE 8" THICK COMPACTED COQUINA BASE
3. PROVIDE TYPE III ASPHALT PAVING OVER ENTIRE WIDTH OF ROAD AT 100 lbs / SQ. YD.

# B U R C A L E R O A D (SR - 992)

EXISTING GRADE

36" COVER (MIN.)

NEW 8" FORCE MAIN

INV. 5.50±

INV. 8.50±

INSTALL @ 2.00% GRADE (150') (DO NOT EXCEED)

MANHOLE No. 63

TOP OF MH 16.28

MANHOLE No. 64

TOP OF MH 15.91

11.22' 6" LATERAL

21.64' 6" LATERAL

21.9' 6" LATERAL

10"-10" STUB INV. SW. 2.20

INV. NE. 2.20

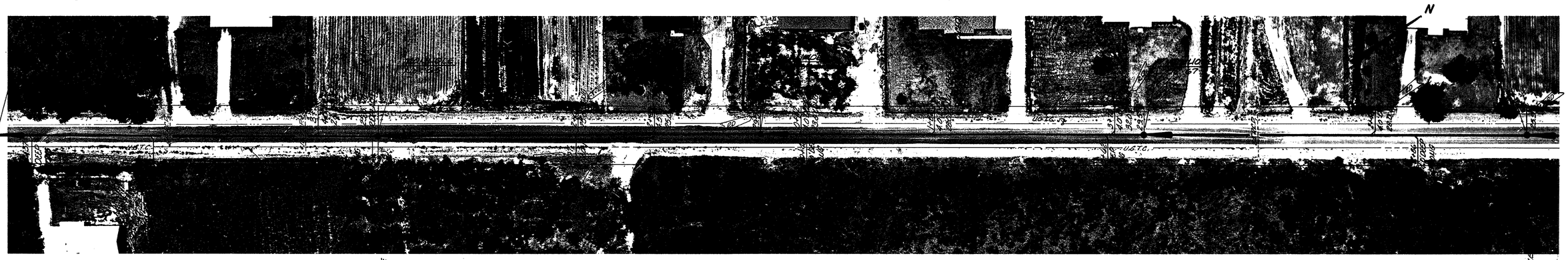
12" D.I.P. TO P.S. (20' STUB-OUT, PART 1) @ 0.40% GRADE

INV. SE. 1.89

399.2' of 12" V.C.P. @ 0.22 %

INV. NE. & SW. 3.00

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00




# B U R C A L E R O A D (SR-992)

MANHOLE No. 61

TOP OF MH 15.91

24" R.C.P.

2+37' 6" LATERAL

MANHOLE No. 65

TOP OF MH 18.25

18" R.C.P.

3+37' 6" LATERAL

3+94' 6" LATERAL

6"STUB @ MH 65

MH 65 TO 63 PIPE CRACKED

MH 65 + 22.2' PIPE CUT CRACK

MANHOLE No. 66

TOP OF MH 18.55

EXISTING GRADE

ALL SERVICE LATERALS BETWEEN MH 66 & 67 ARE PVC

MANHOLE No. 67

TOP OF MH 17.71

MANHOLE No. 68

TOP OF MH 18.86

INV. NE. & SW. 3.00

INV. NE. & SW. 3.85

INV. NE. & SW. 4.79

INV. NE. & SW. 5.60

INV. NE. & SW. 6.58

400.5' of 12" V.C.P. @ 0.22 %

400.7' of 12" V.C.P. @ 0.22 %

401.1' of 12" P.V.C. @ 0.22 %

395.6' of 12" V.C.P. @ 0.22 %

8-01-034/61-WS

RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| ADD 2 | CHGD 16"FM TO PART 1 JUL'79 | |
| RD | ADDED RECORD INFORMATION | 10-80 |

REVISIONS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

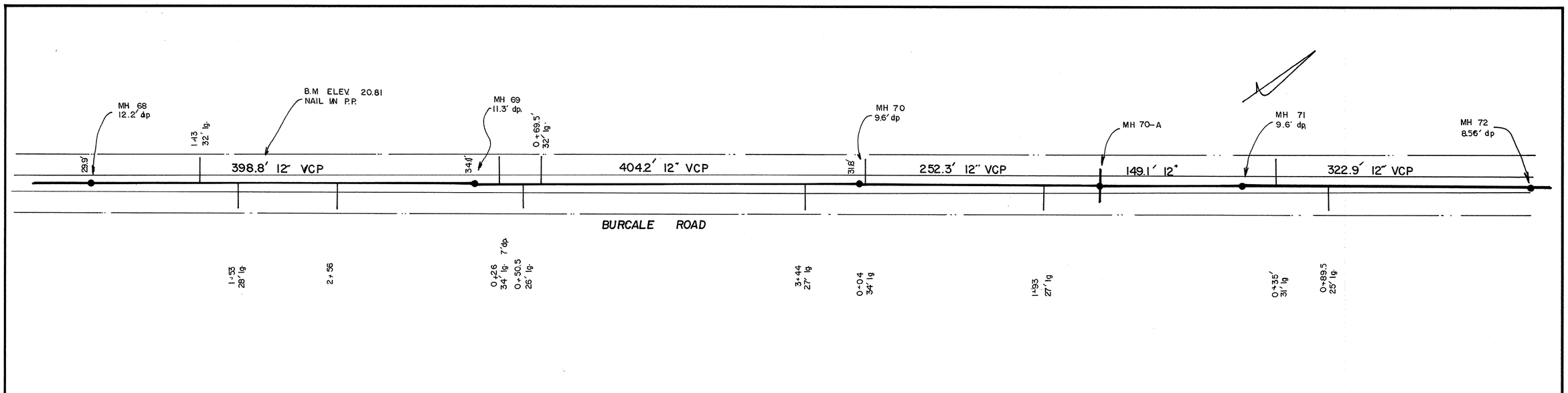
BLACK, CROW AND EIDSNESS, INC. ENGINEERS

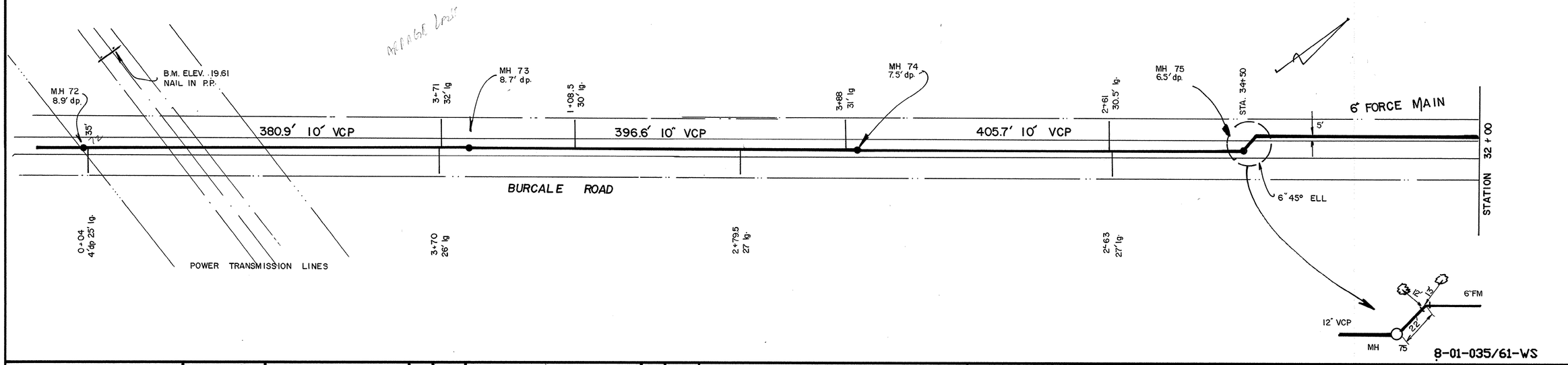
DRAWN BY: K.L.J. & P.A.B. | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 8" FORCE MAIN AND NEW 12" V.C.P. GRAVITY SEWER ALONG COUNTY RD.

SHEET NO. 28

C 450381-05

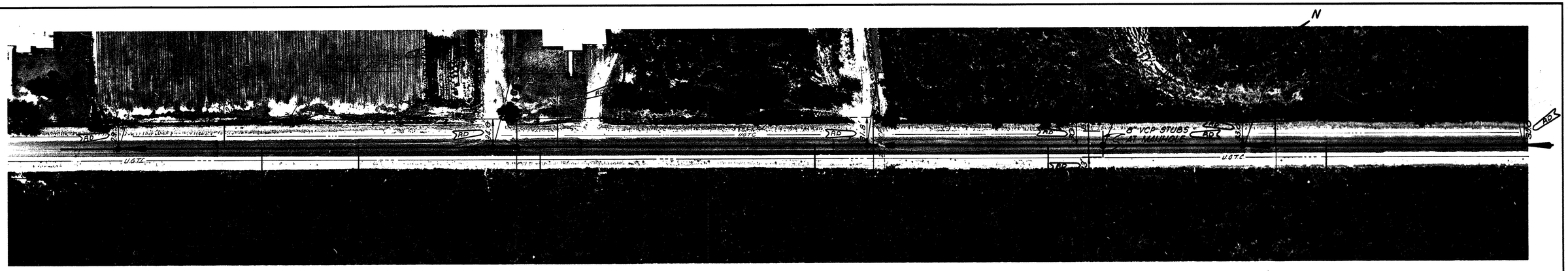


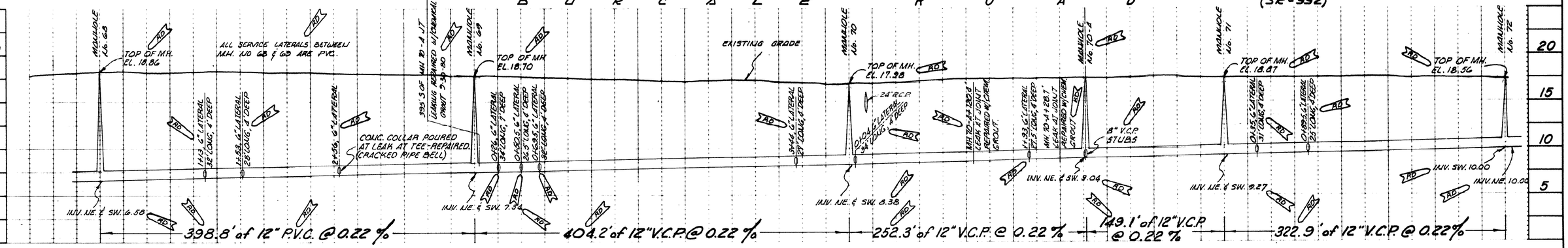

8-01-035/61-WS

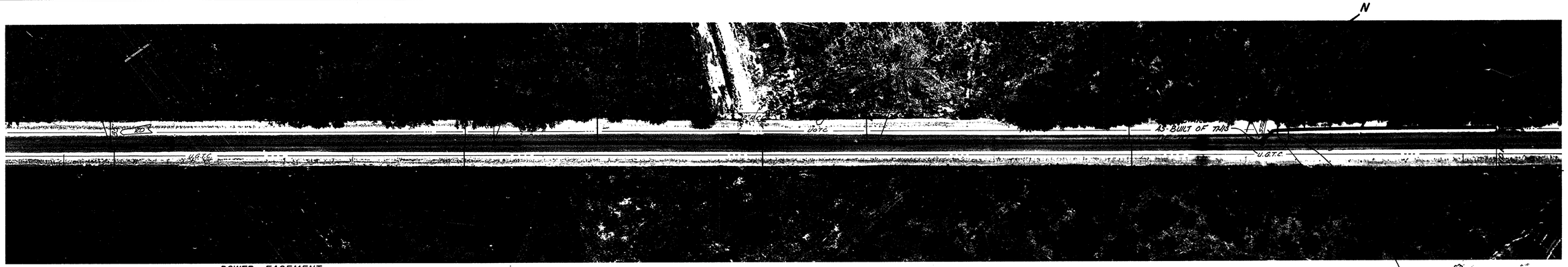
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 12" & 10" GRAVITY & 6" F.M. ON COUNTY RD |

SHEET 29 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05



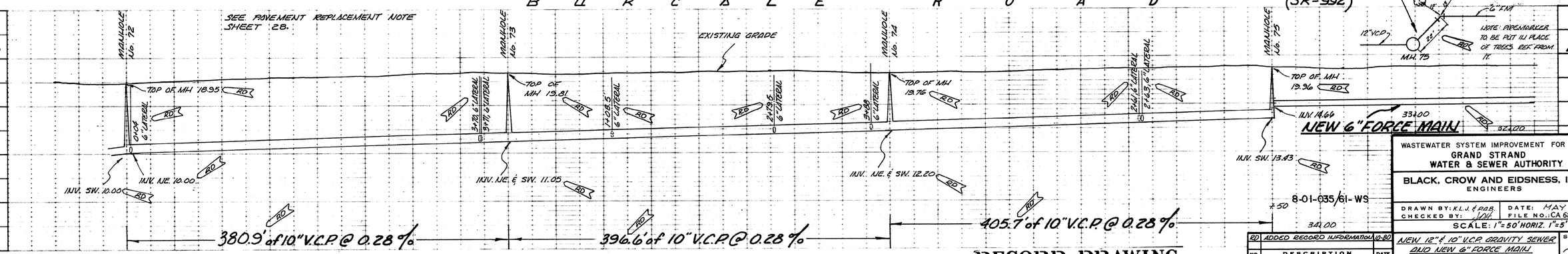

B U R C A L E R O A D (SR-992)




POWER EASEMENT

B U R C A L E R O A D (SR-992)




RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 10-80 |

REVISIONS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. & P.A.B. | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

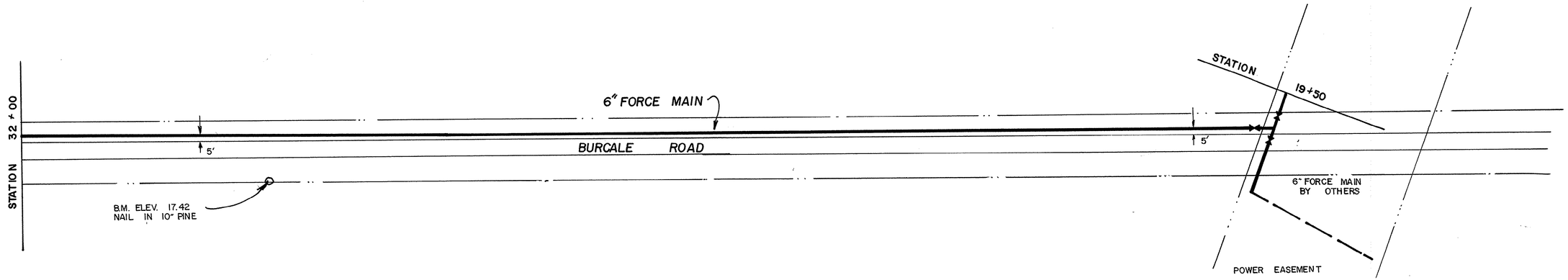
8-01-035/61-WS

#50

NEW 12" & 10" V.C.P GRAVITY SEWER AND NEW 6" FORCE MAIN ALONG COUNTY RD.

SHEET NO. 29

C 450381-05




8-01-036/61-WS

50 0 50 100
Graphic Scale

This Drawing is a tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

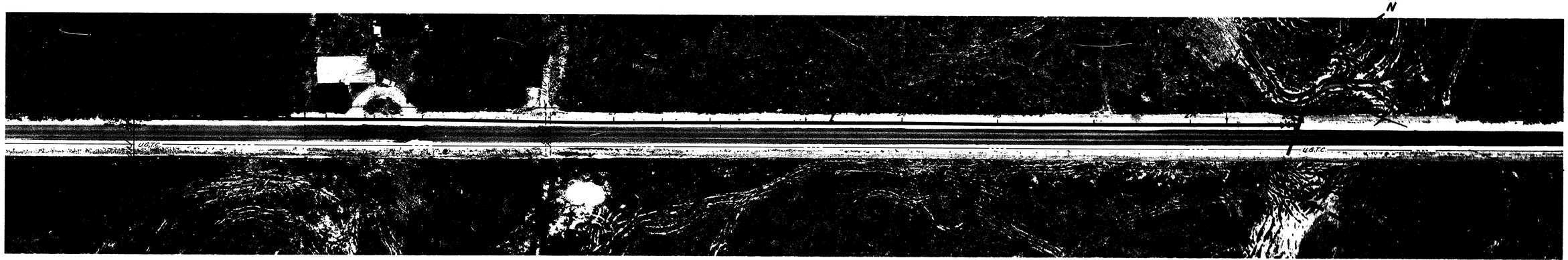
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|
| | | | | |

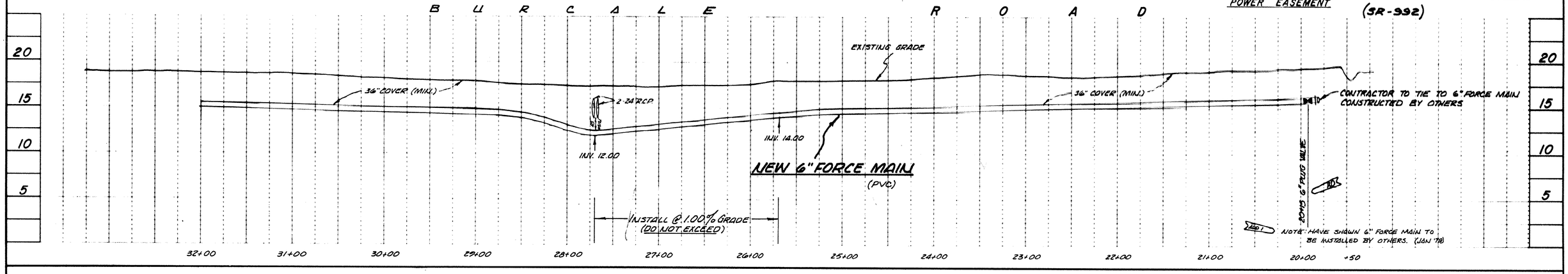
GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

# 6" FORCE MAIN ALONG COUNTY ROAD

SHEET OF 30
DATE May—78
Traced 01-86
CA 68505.71
C 450381-05




RECORD DRAWING

ADD 1

| NO. | DESCRIPTION | DATE |
|---|---|---|
| #2 | ADDED RECORD INFORMATION SEE NOTE | 7-82 |

REVISIONS

8-01-036/6 WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. & P.A.B. | DATE: MAY 78
CHECKED BY: | FILE NO. CA 68505.71

SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 6" FORCE MAIN
ALONG COUNTY RD.

SHEET NO. 30

C 450381-05

THIS SECTION ABANDONED. SEE RELOCATION (DWG. 9-17-002-S).

10" PLUG AND TEMPORARY BLOCK

BEGIN PART 1C

25' EASEMENT

CONTRACTORS PROPOSED METHOD FOR CROSSING SOCASTEE CREEK TO BE APPROVED BY RESIDENT PRIOR TO BEGINNING CONSTRUCTION.

STATION 7+04 (± 75.5° DEFLECTION)

BEGIN RESTRAINED

10"-45° BEND
10"-22 ½° BEND

PUMP STATION N° 12

NEW 10" FORCE MAIN

CONTRACTOR SHALL RESTRAIN ALL JOINTS FROM 35 FT. NORTH OF FIRST BEND TO 35 FT. EAST OF LAST BEND USING DUCTILE IRON MECH. JOINT PIPE WITH RETAINER GLANDS. APPROXIMATELY 15 RETAINER GLANDS NO BLOCKING REQUIRED.

SOCASTEE CREEK

45° BEND RES. JT. 7' COVER

22½° BEND RES. JT.

±5.0'

±20.0'

TO 10" 45° BEND RES. JT.

THIS SECTION ABANDONED TO APPROX. STA. 8+56. SEE RELOCATION (DWG. 9-17-002-S)

11GT FROM APV TO BEND

STATION 8+18 (±66° DEFLECTION)

19'

25' EASEMENT

END RESTRAINED JOINTS

10"-45° BEND
10"-22 ½° BEND

FOR REALIGNMENT OF THESE FITTINGS SEE DETAIL BELOW.

NEW 10" FORCE MAIN

19' FROM ℄ OF 45° TO DIP/PVC TRANSITION

10"-45° BEND (45 SHOWN 6' DEEP)

STATION 7+76 (± 52° DEFLECTION)

45° BEND RES. JT. 4' DEEP

6.0'

22½° BEND RES. JT 4' DEEP

1.54'

TO 10" 45° BEND RES. JT.

NOTE: THIS PROFILE BASED ON ORIGINAL ROUTE AND FOR GENERAL PLANNING ONLY. CONTRACTORS STAKEOUT CREW TO PROVIDE ACTUAL PROFILE, FINAL GRADE AND AIR VALVE LOCATIONS TO BE DETERMINED BY RESIDENT ENGINEER.

APPROX. GRADE

EXISTING GRADE

2" AIR RELEASE

LAY TO GRADE 0.00%

INV. 4.50

INV. 4.50

NEW 10" FORCE MAIN

PVC

END OF CAST IRON BEGIN PVC PIPE

SOCASTEE CREEK BRIDGE

22½° BEND

45° BEND

45° BEND

ASSUMED STATION 7+92 IS ABOVE

22½° BEND

45° BEND

DIP RES. JT. 139'

PVC

15
10
5
0

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

NEW 8" FORCE MAIN SEE SHT. N° 28 FOR CONTINUATION AND FITTINGS

10" PLUG VALVE AND BOX.

8' PLUG VALVE & BOX

LEAK AT THIS POINT REPAIRED 4-25-80

APPROX. STATION 21+92

VALVE MARKER S 18,13

NEW 12" FORCE MAIN SEE SHT. N° 28 AND 23

25' EASEMENT

NEW 10" FORCE MAIN

ARV NEAR PIPE MARKER

STATION 21+36

NOTE: APPROXIMATELY 210 FT. NORTH OF ORIGINAL ROUTE. ACTUAL LOCATION OF EASEMENT BY RESIDENT ENGINEER.

S.C. HWY N° 392

± 288' TO ℄ OF CASING

NOTE: APPROXIMATELY 210 FT. OF 12" FORCE MAIN ADDED AND 210 FT. OF 8" FORCE MAIN DELETED BY THIS REVISION.

EXISTING GRADE

36" COVER (MIN.)

NEW 10" FORCE MAIN (PVC)

36" COVER (MIN.)

2" AIR RELEASE

54" DIP

10" PLUG VALVE

VENTED

LOCTC

15
10
5
0

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 +92

RECORD DRAWING

8-01-037/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: BW | DATE: JUNE 1979
CHECKED BY: J.D.H | FILE NO. CA 68005.11

SCALE: 1"=50' HORIZ. 1"=5' VERT.

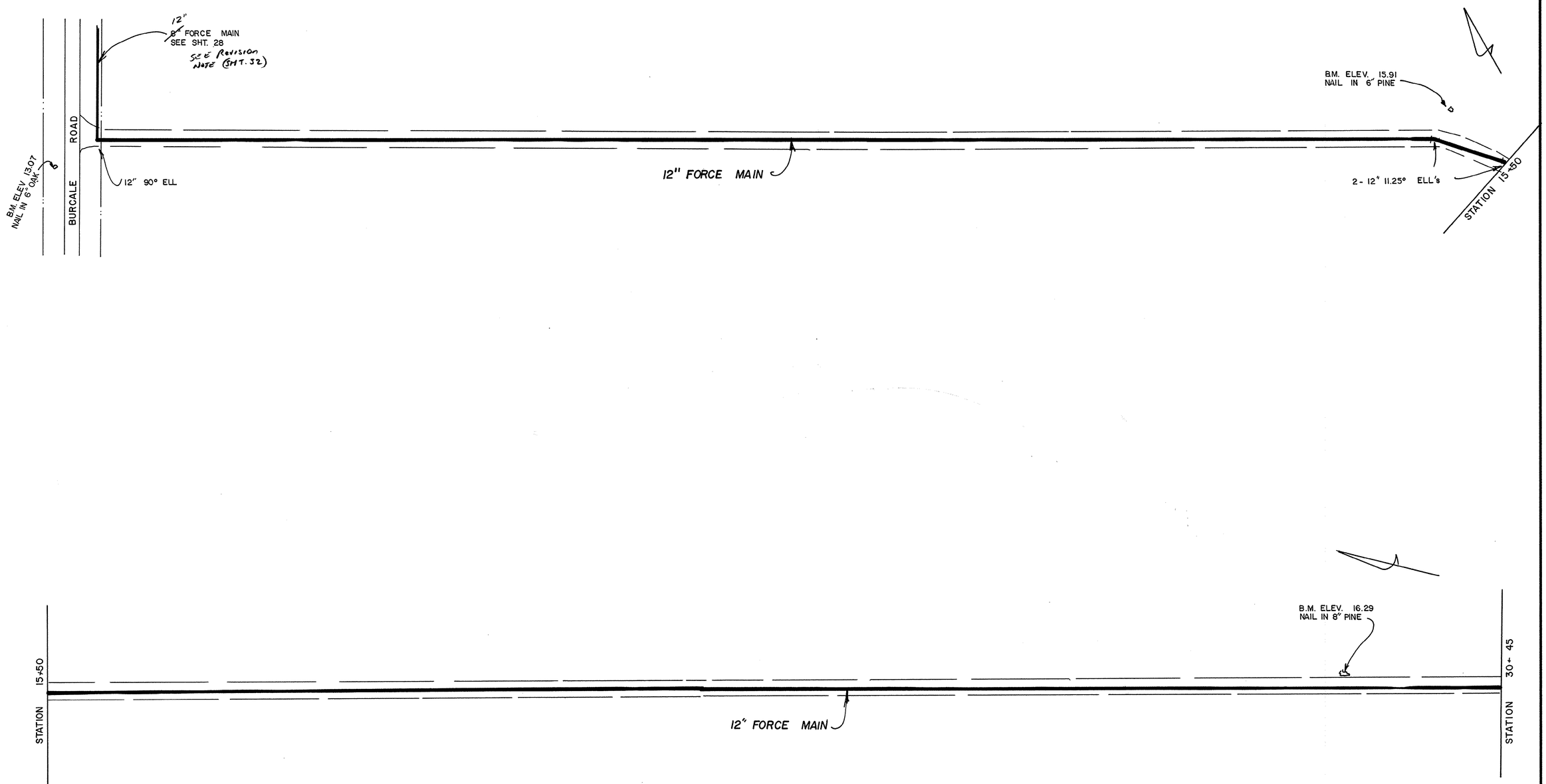
| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | REQUEST FOR CHANGE ADDED RECORD INFORMATION | 6-79 1-82 |

REVISIONS

NEW 10" FORCE MAIN TO P.S. N° 12

SHEET NO. 32

REV




SEE INDEX MAP FOR THIS SHEET LOCATION.

8-01-038/61-WS

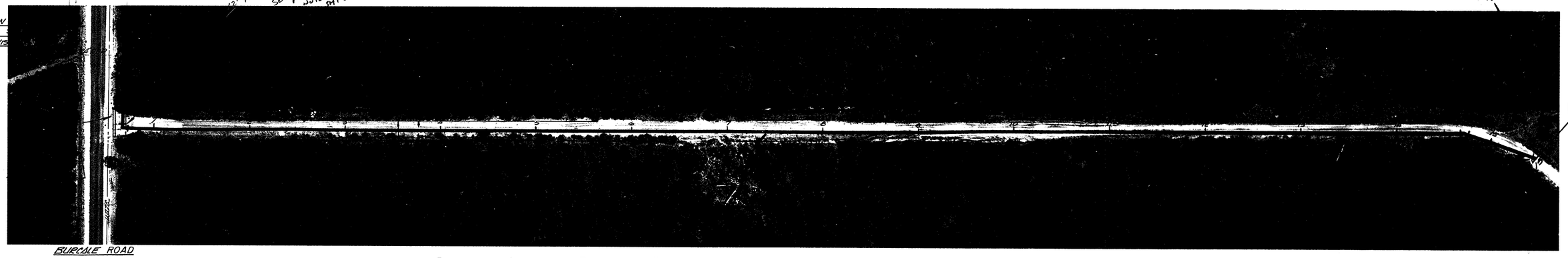
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 12" FORCE MAIN ALONG DIRT TRAIL |

SHEET OF 33
DATE May-78
Traced 01-86
CA 68505.71
C 450381-05

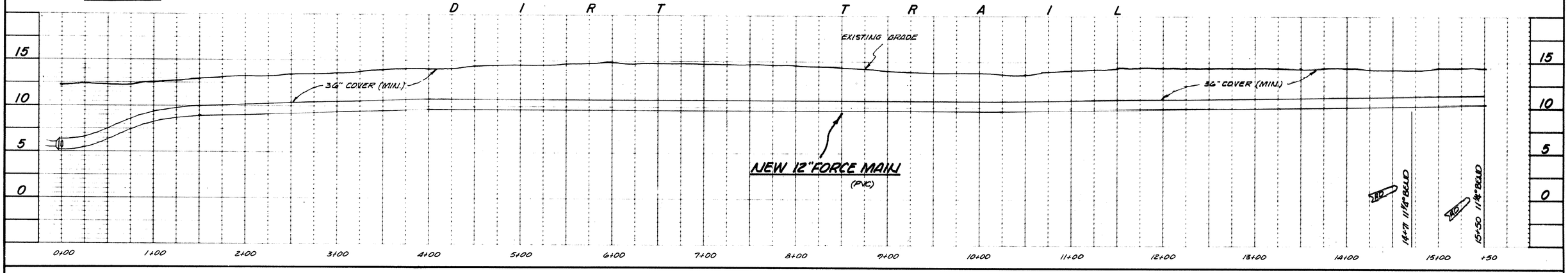
NEW
SEE
REVIS

12" FM SEE REVISION NOTE ON SHT 32

N



BURCALE ROAD

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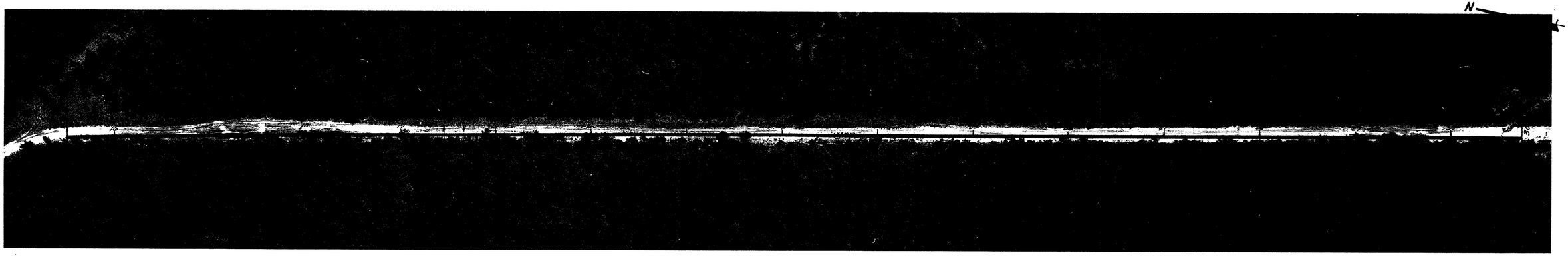
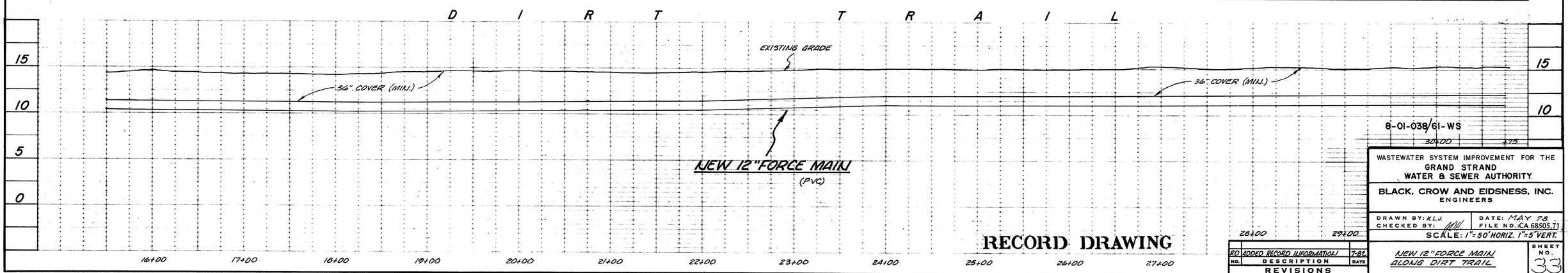





8-01-038/61-WS

RECORD DRAWING

| REVISIONS | | |
|---|---|---|
| NO. | DESCRIPTION | DATE |
| RD | ADDED RECORD INFORMATION | 7-82 |

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

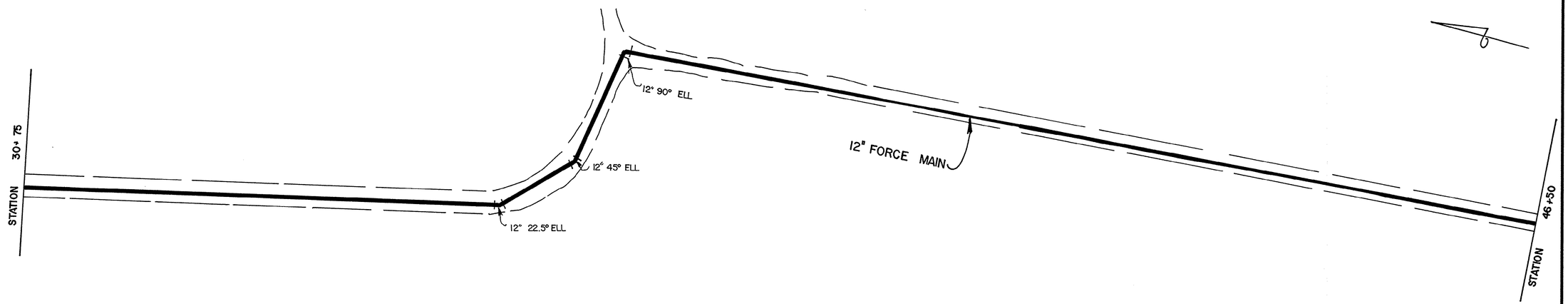
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

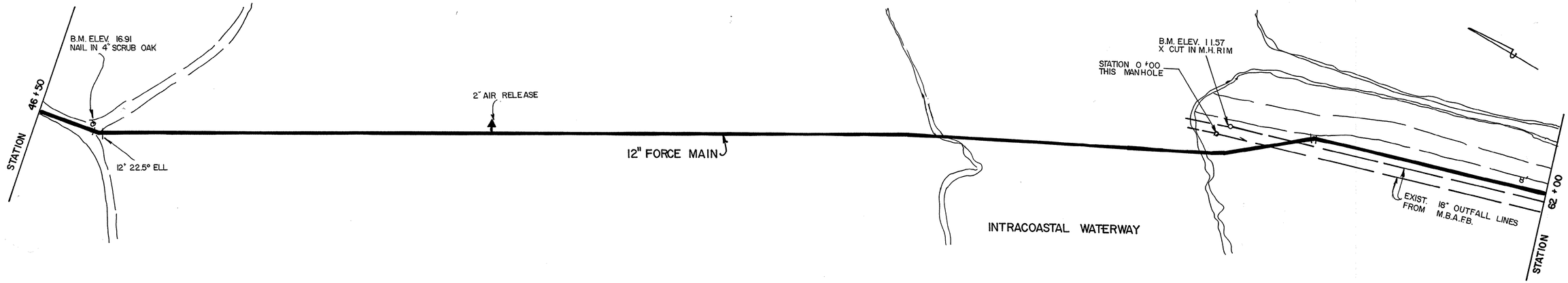
DRAWN BY: K.L.J. DATE: MAY 78
CHECKED BY: FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 12" FORCE MAIN ALONG DIRT TRAIL

SHEET NO. 33

C 450381-05




SEE INDEX MAP FOR
THIS SHEET LOCATION.

8-01-039/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

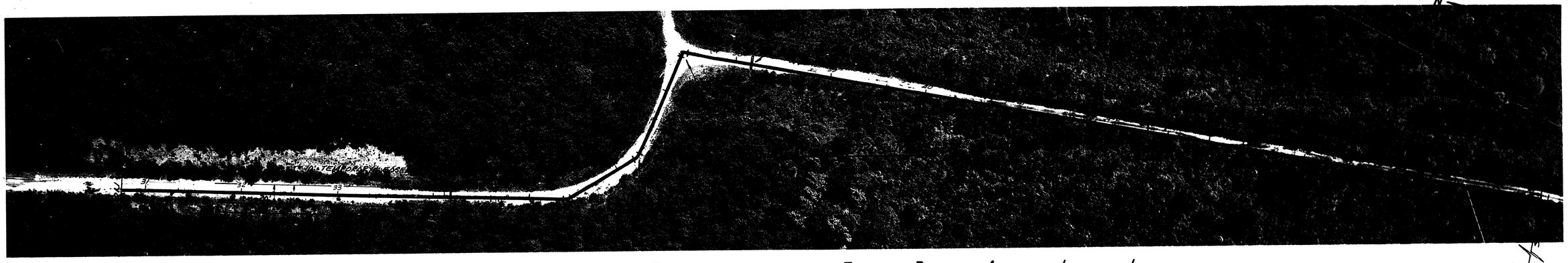
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

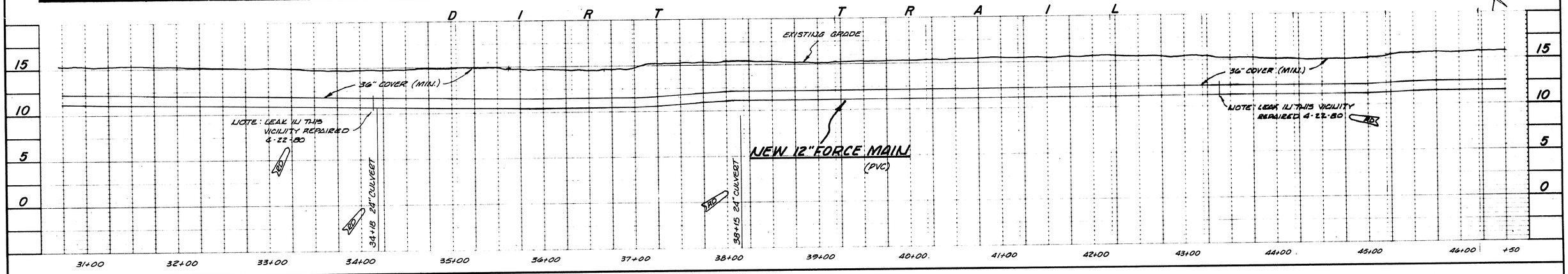
GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

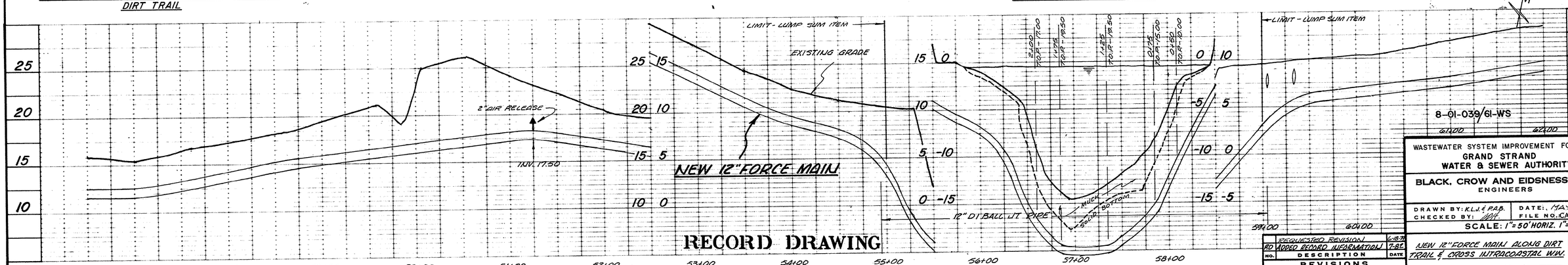
# 12" FM ON DIRT TR. & W/W CROSSING

SHEET OF 34
DATE May-78
Traced 01-86
CA 68505.71
C 450381-05



DIRT TRAIL




RECORD DRAWING

| REVISIONS | | |
|---|---|---|
| NO. | DESCRIPTION | DATE |
| | REQUESTED REVISION | 6-18-81 |
| RD | ADDED RECORD INFORMATION | 7-82 |

8-01-039/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

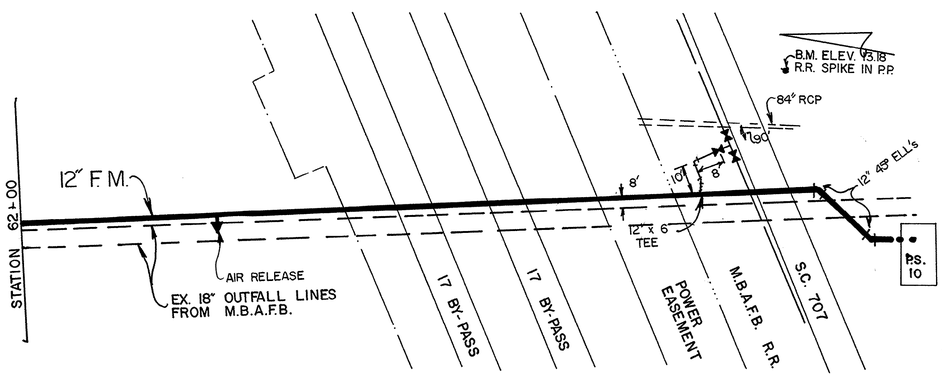
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

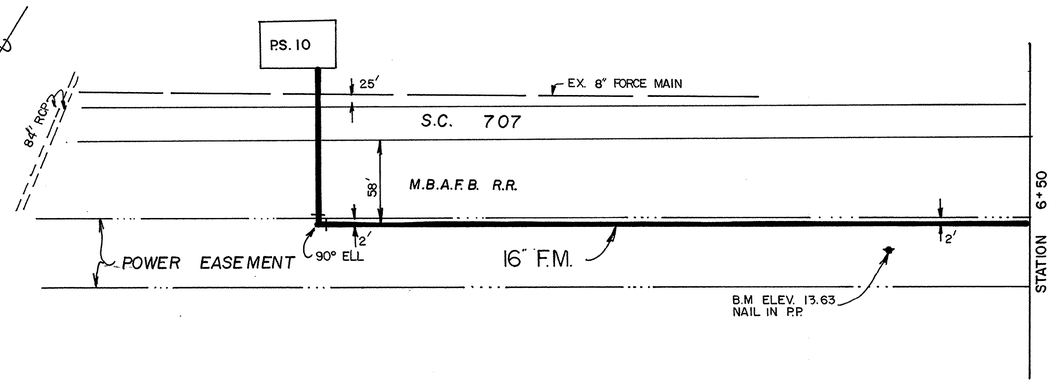
DRAWN BY: KLJ & RAB | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO. CA.68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

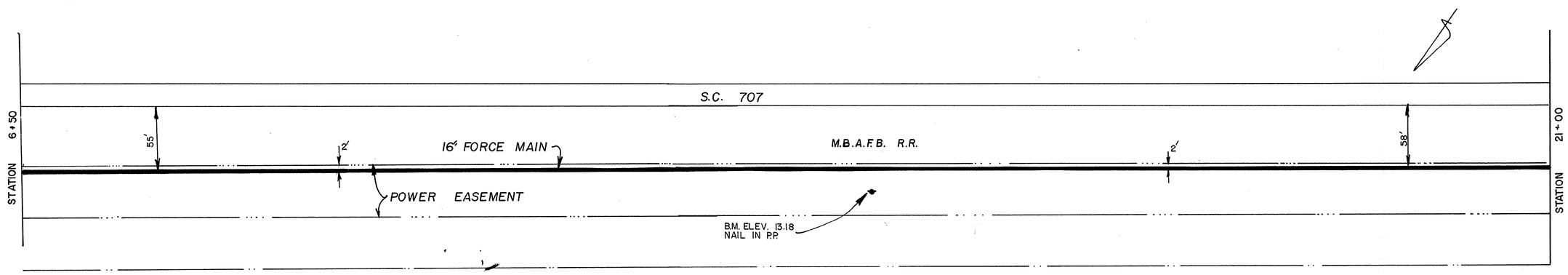
NEW 12" FORCE MAIN ALONG DIRT TRAIL & CROSS INTRACOASTAL WW.

SHEET NO. 34

C 450381-05



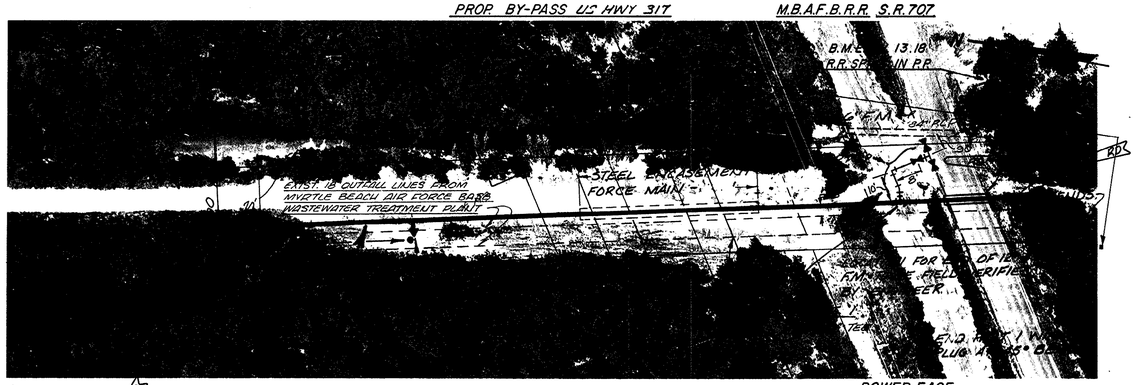



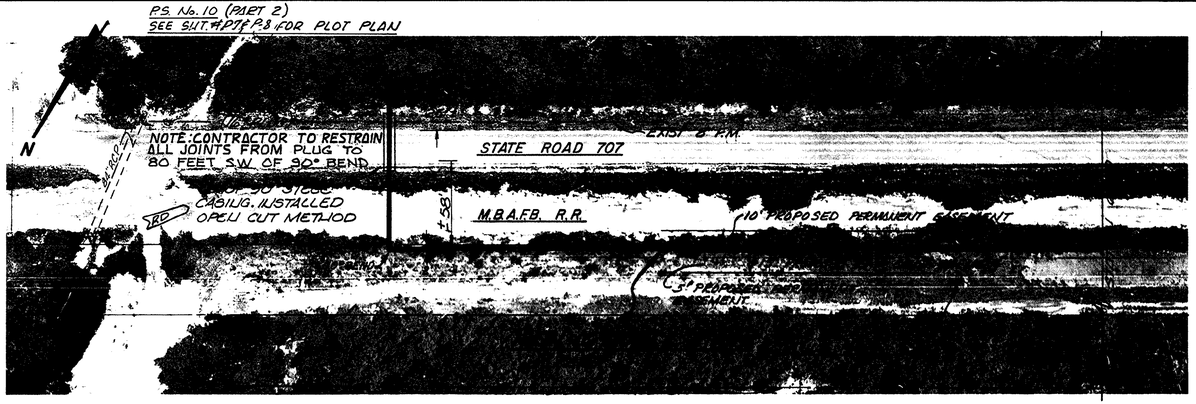



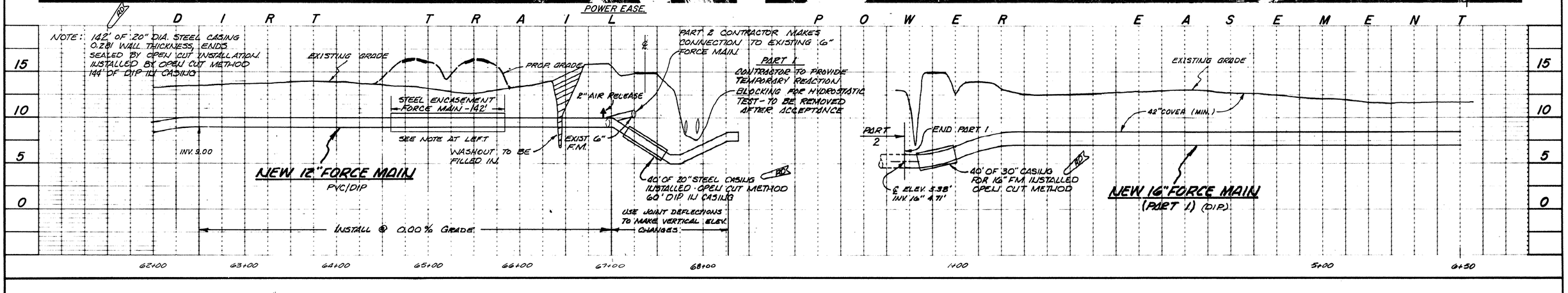

SEE INDEX MAP FOR THIS SHEET LOCATION.

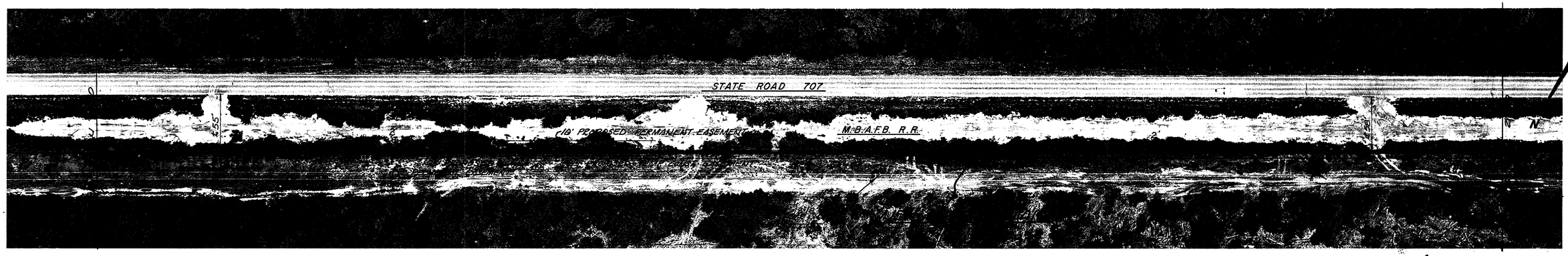
8-01-040/61-WS

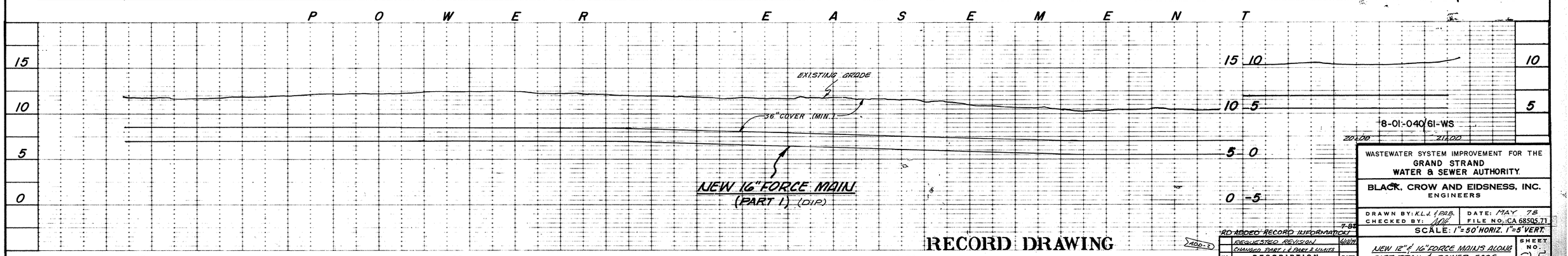
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Scale | | This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 12" & 16" F.M. ALONG DIRT TR. & POWER EAS. | SHEET OF 35<br>DATE May--78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |




8-01-040/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. & P.D.B. | DATE: MAY 78
CHECKED BY: [illegible] | FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 12" & 16" FORCE MAINS ALONG DIRT TRAIL & POWER EASE.

SHEET NO. 32

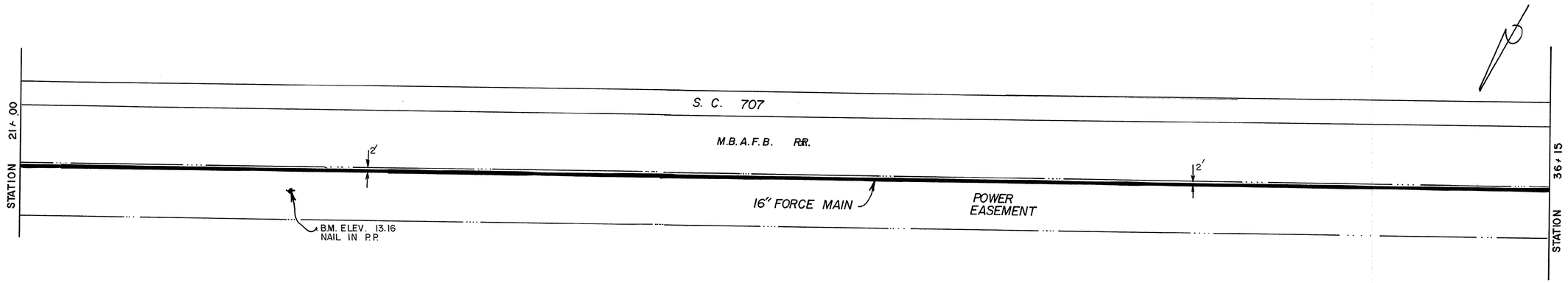
RECORD DRAWING

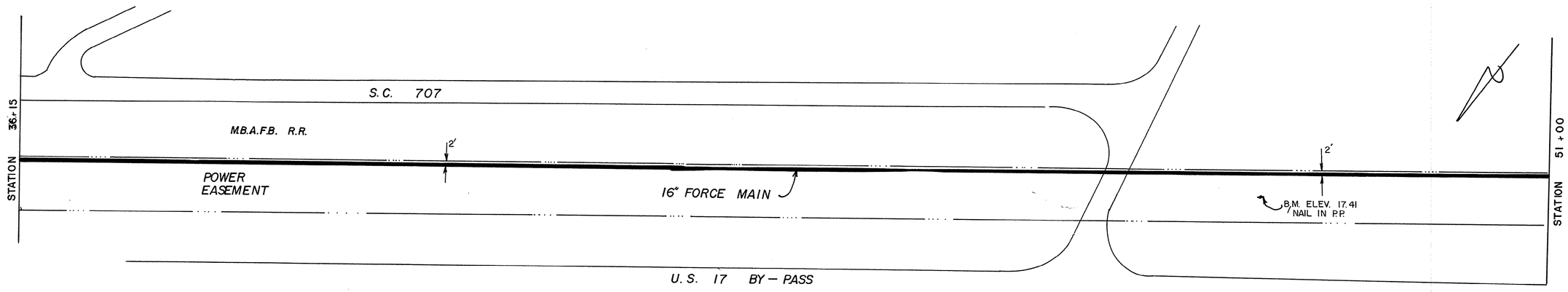
ADD-2 RD ADDED RECORD INFORMATION 7-85

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REQUESTED REVISION | 6/6/78 |
| | CHANGED PART 1 & PART 2 LIMITS | |

REVISIONS

C 450381-05

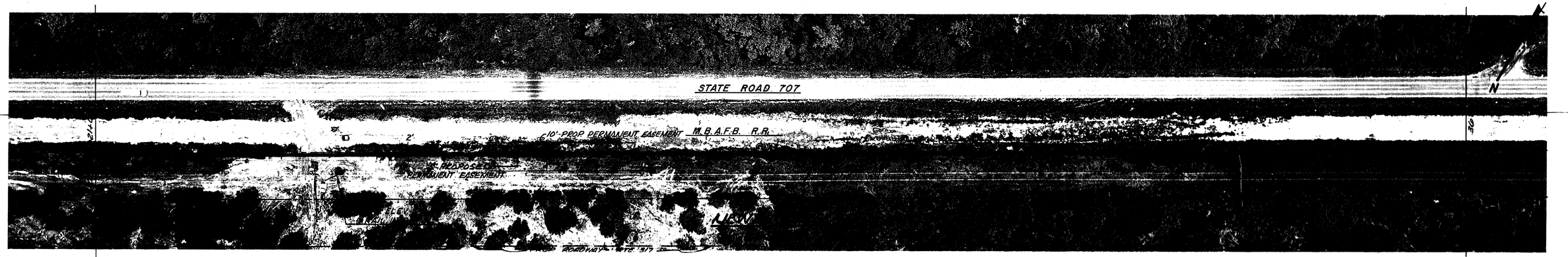


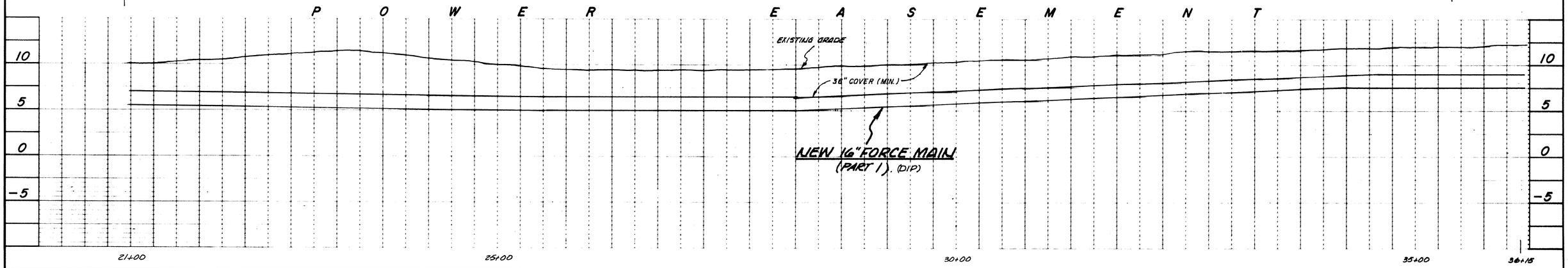



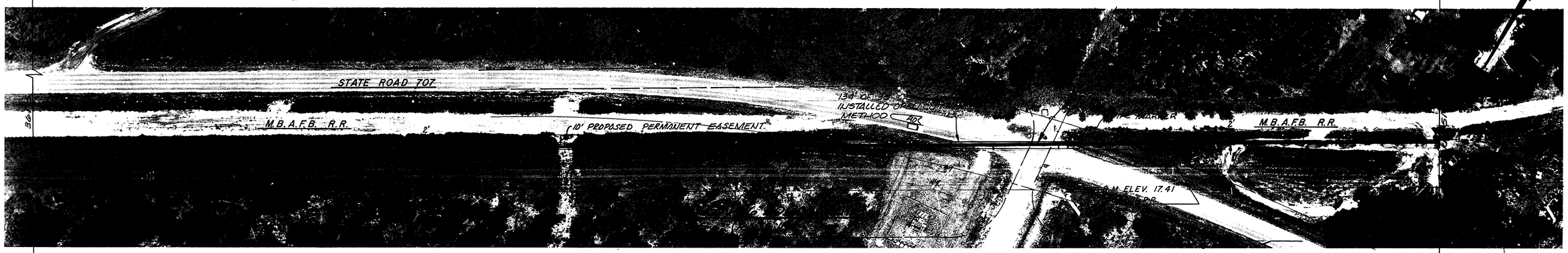

SEE INDEX MAP FOR THIS SHEET LOCATION.

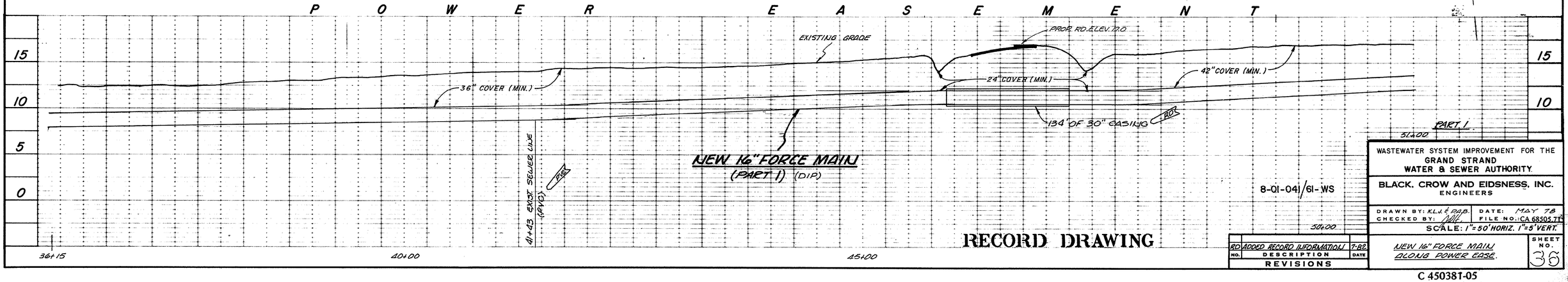
8-01-041/61-WS

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 16" FORCE MAIN ALONG POWER EAS. | SHEET OF 36<br>DATE May-78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |




RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| RD | ADDED RECORD INFORMATION | 7-82 |

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

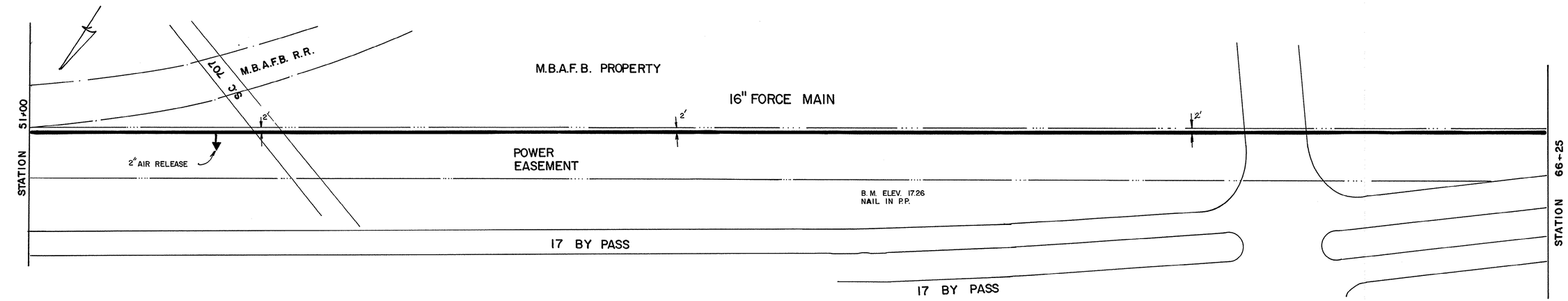
DRAWN BY: K.L.J. & P.A.B. DATE: MAY 78
CHECKED BY: FILE NO.: CA 68505.TF
SCALE: 1"=50' HORIZ. 1"=5' VERT.

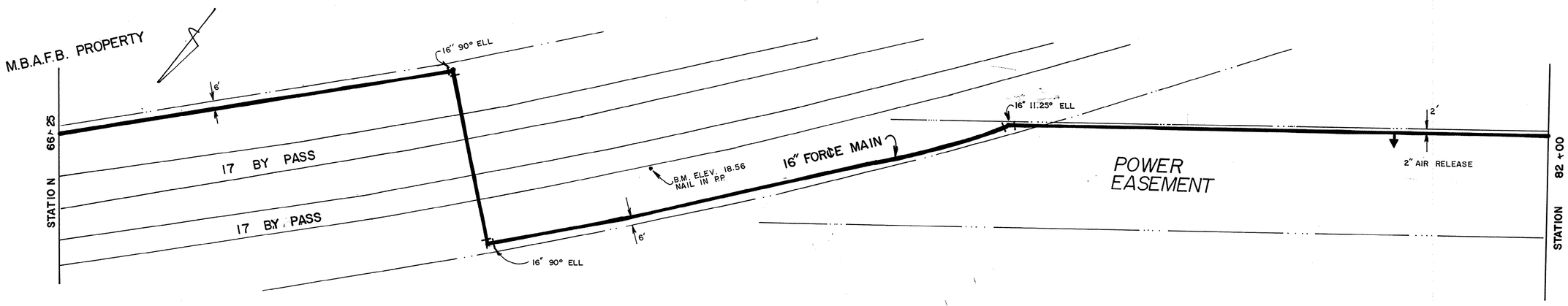
8-01-041/61-WS

NEW 16" FORCE MAIN ALONG POWER EASE.

SHEET NO. 36

C 450381-05




SEE INDEX MAP FOR
THIS SHEET LOCATION.

8-01-042/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

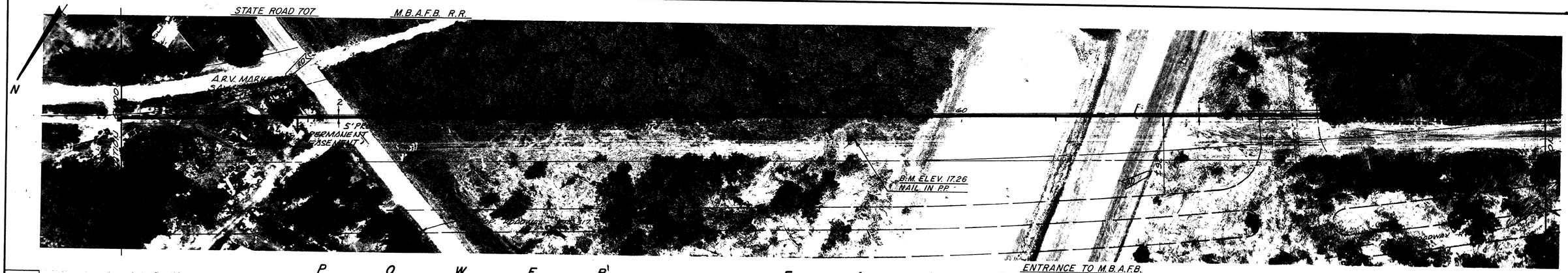
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

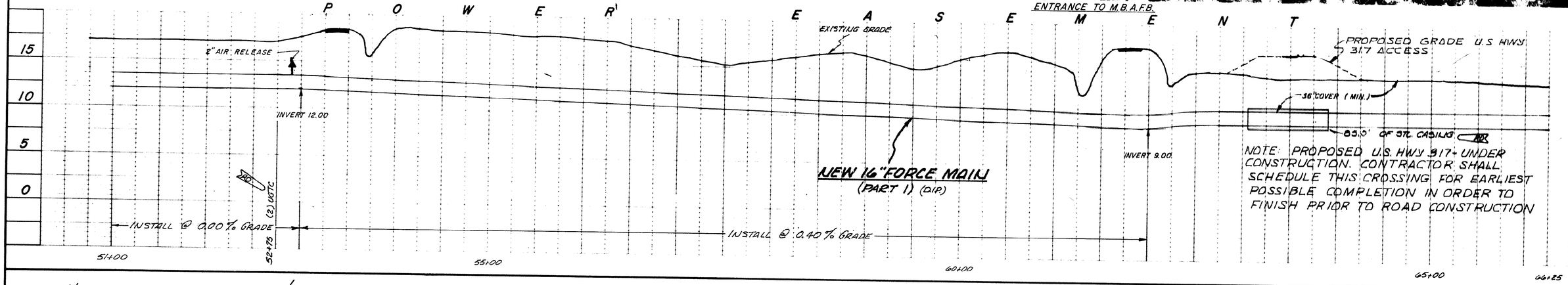
GRAND STRAND WATER & SEWER AUTHORITY

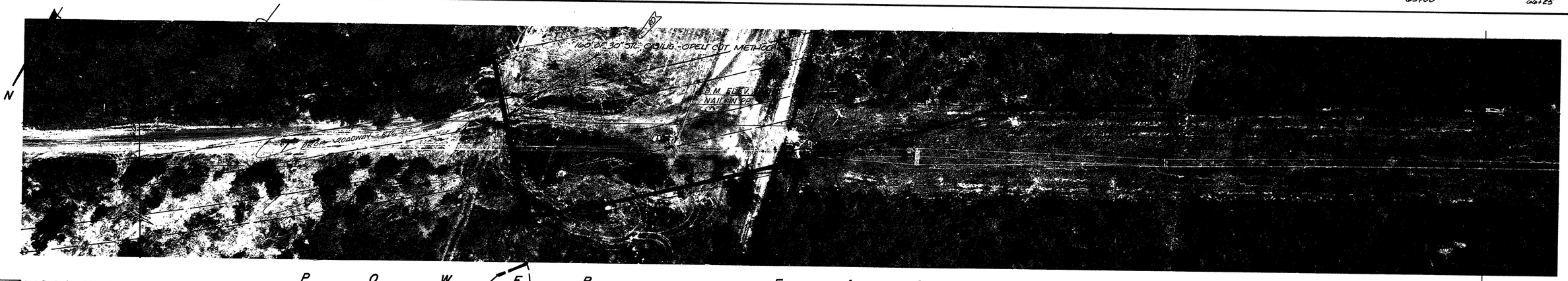
201 SEWER SYSTEM

# 16" F.M. ALONG POWER EAS. & 17 BY-PASS

SHEET 37 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05




RECORD DRAWING

8-01-042/61-WS

PART 1

82+00

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. & R.A.B. | DATE: MAY 78
CHECKED BY: | FILE NO.: CA 68505.71

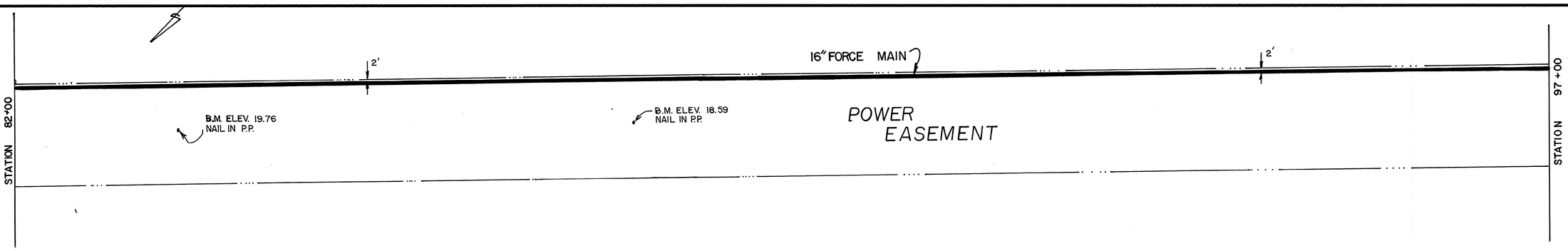
SCALE: 1"=50' HORIZ. 1"=5' VERT.

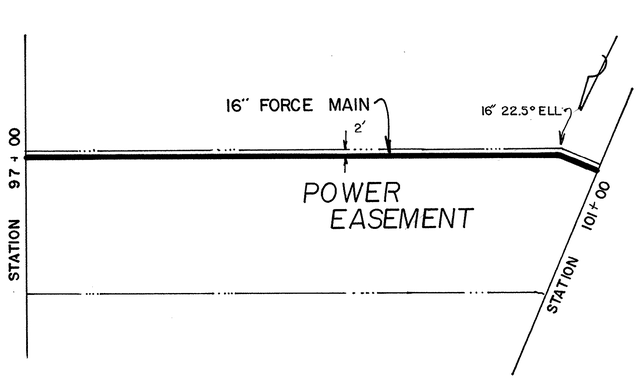
| NO. | REVISIONS | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 7-82 |

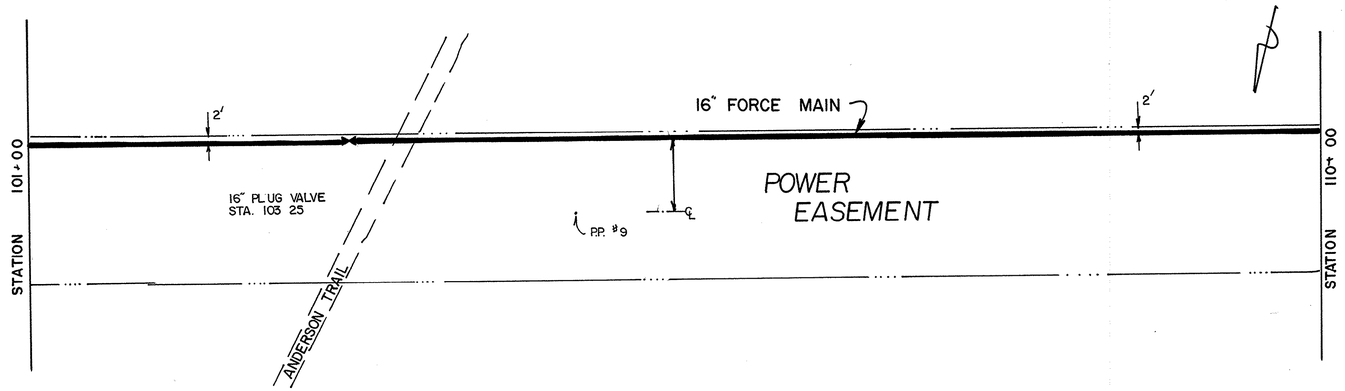
NEW 16" FORCE MAIN ALONG POWER EASE. & PROP. RD.-RTE 317

SHEET NO. 37

C 450381-05




SEE INDEX MAP FOR
THIS SHEET LOCATION.

8-01-043/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

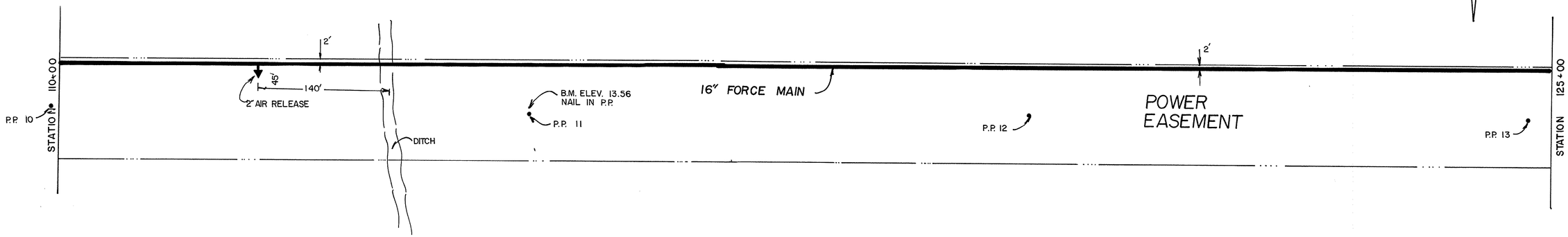
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|
| | | | | |

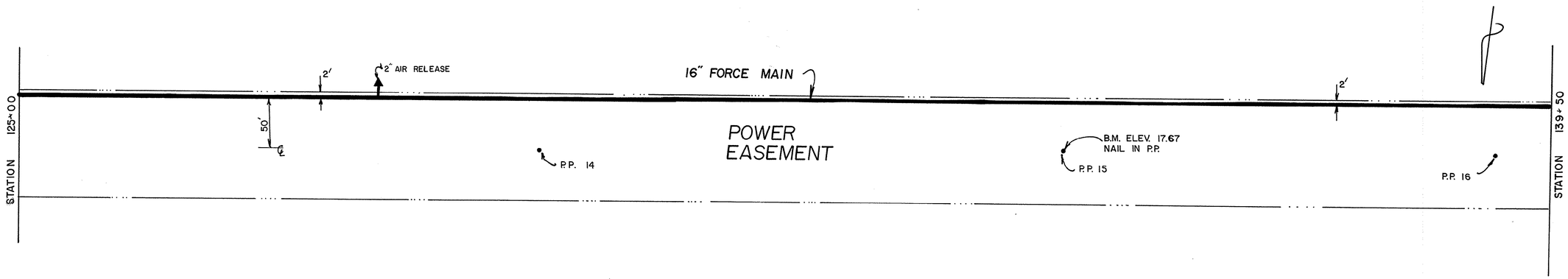
GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

# 16" FORCE MAIN ALONG POWER EAS.

SHEET 38 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05




SEE INDEX MAP FOR
THIS SHEET LOCATION.

8-01-044/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

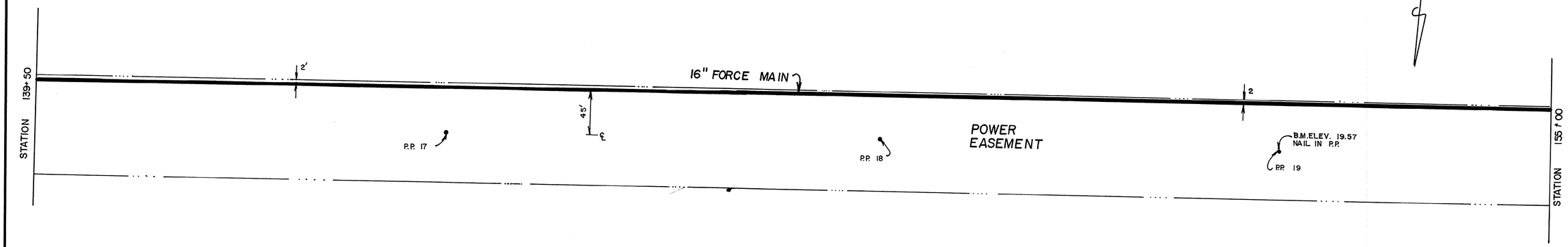
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

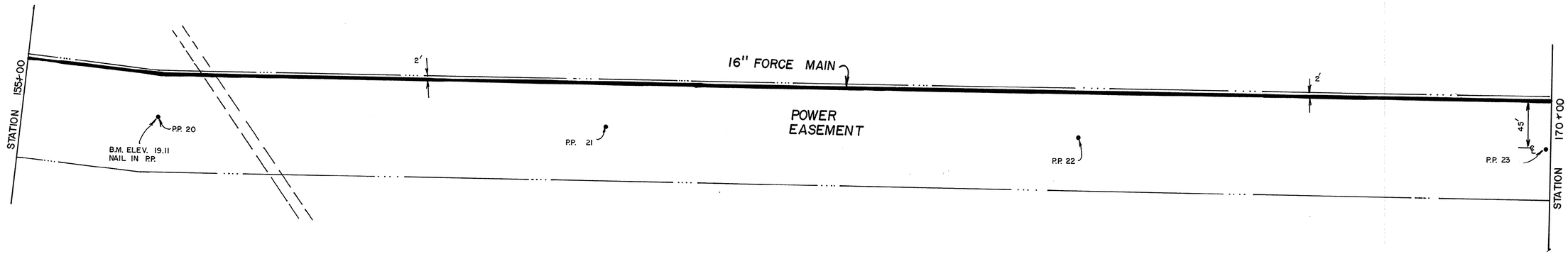
GRAND STRAND
WATER & SEWER
AUTHORITY

201 SEWER SYSTEM

# 16" FORCE MAIN ALONG POWER EAS.

SHEET 39 OF
DATE May-'78
Traced 01-86
CA 68505.71
C 450381-05




8-01-045/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

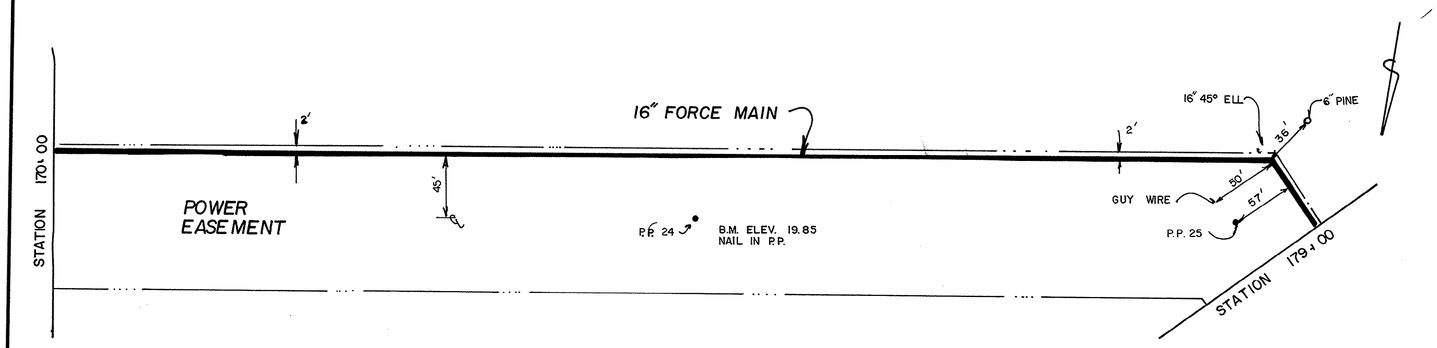
201 SEWER SYSTEM

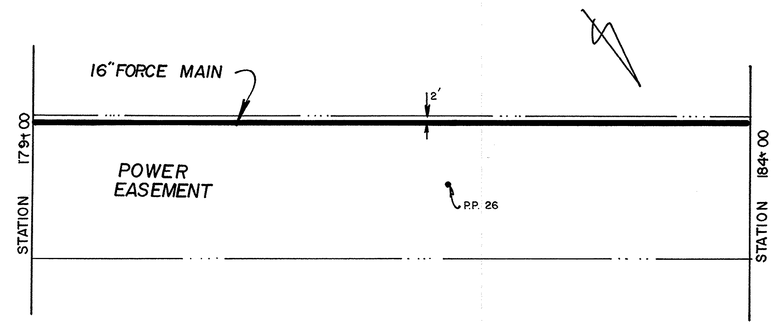
# 16" FORCE MAIN ALONG POWER EAS.

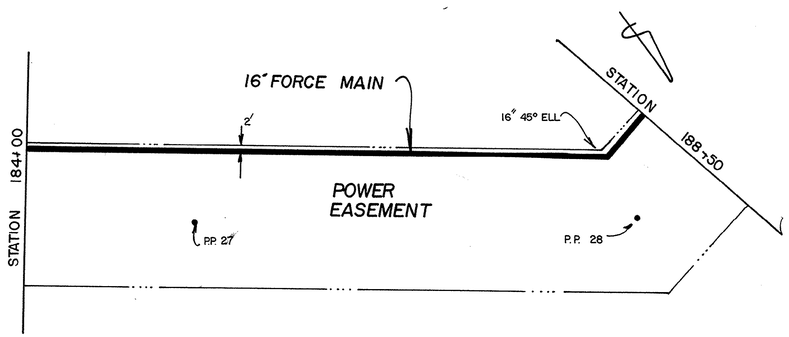
SHEET 40 OF

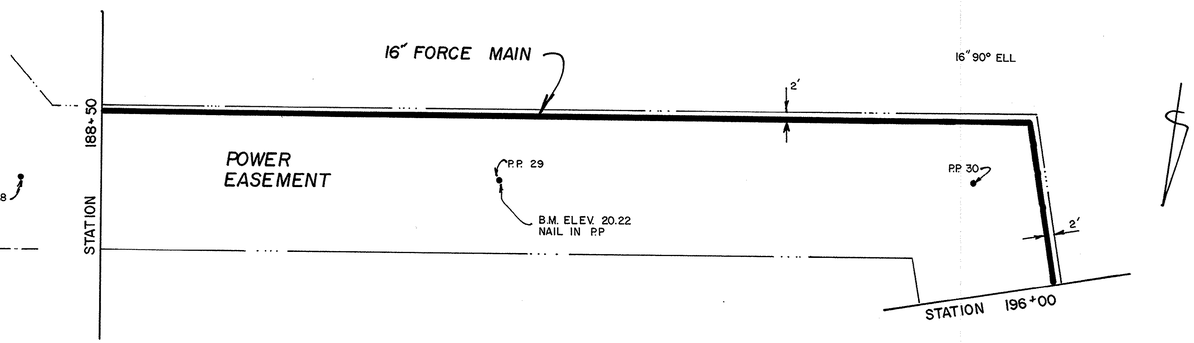
DATE May-'78
Traced 01-86

CA 68505.71
C 450381-05




SEE INDEX MAP FOR THIS SHEET LOCATION.

8-01-046/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

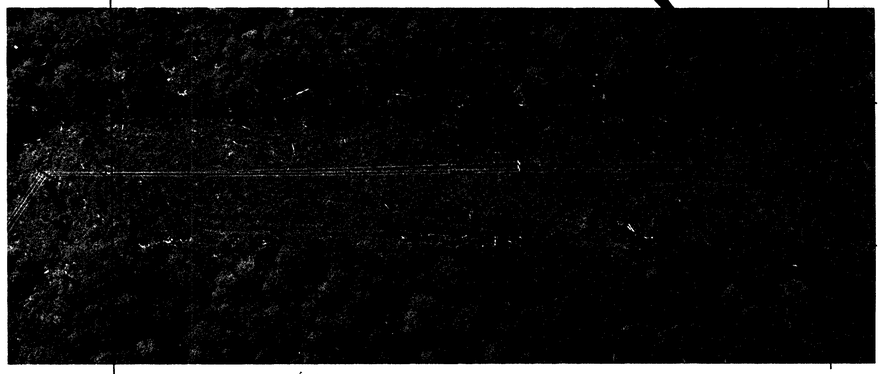
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

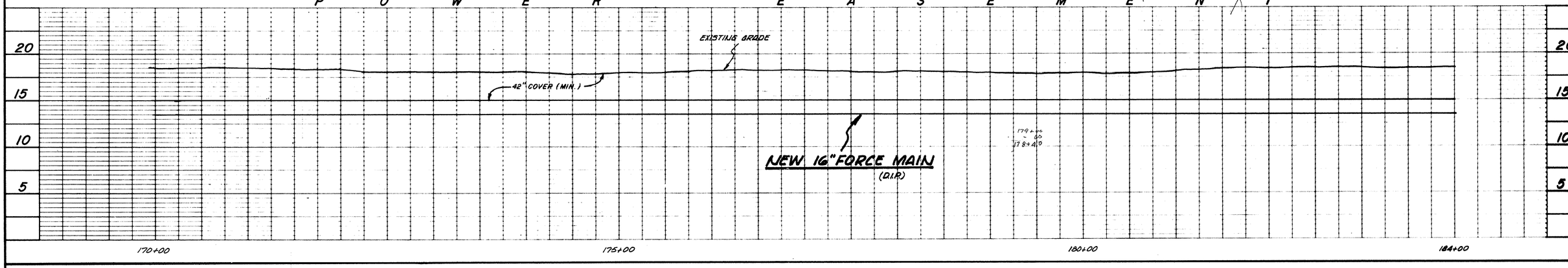
201 SEWER SYSTEM

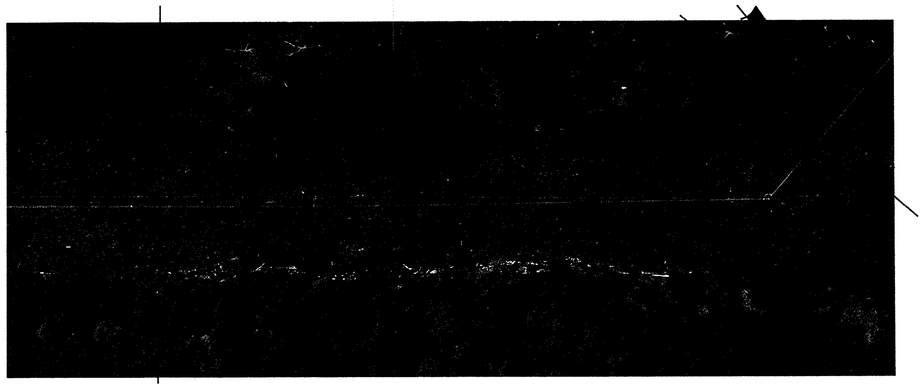
# 16" FORCE MAIN ALONG POWER EAS.

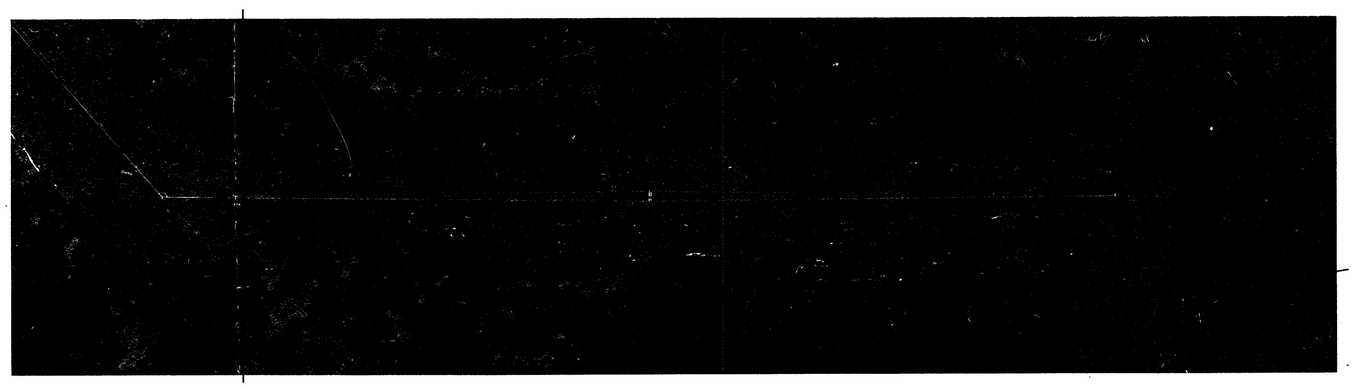
SHEET OF 41
DATE May-78 Traced 01-86
CA 68505.71
C 450381-05



P O W E R E A S E M E N T





N

P O W E R E A S E M E N T




RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| RD | ADDED RECORD INFORMATION | 7-87 |

8-01-046/6-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

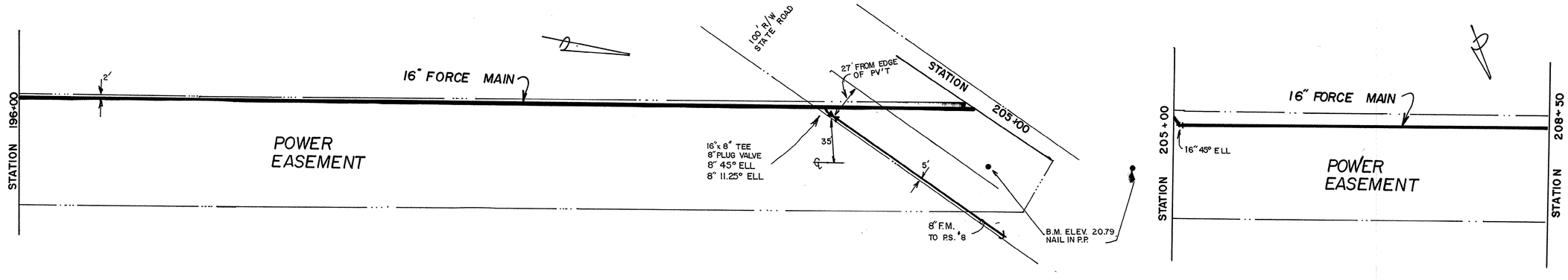
DRAWN BY: K.L.J. & P.A.B. | DATE: MAY 78
CHECKED BY: | FILE NO: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

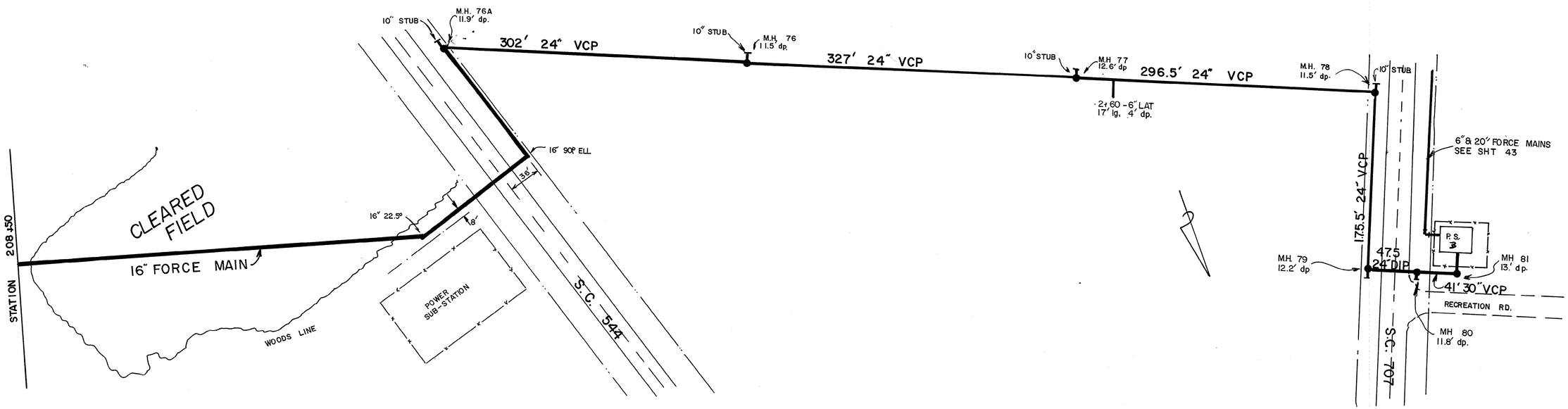
NEW 16" FORCE MAIN
ALONG POWER EASE.

SHEET NO. 1

C 450381-05

43




SEE INDEX MAP FOR THIS SHEET LOCATION.

8-01-047/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

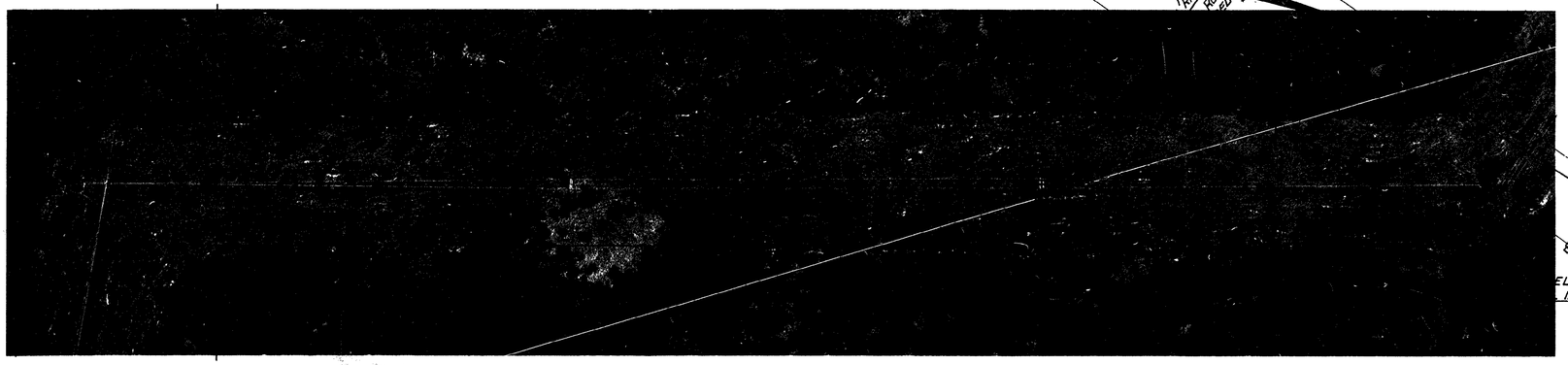
201 SEWER SYSTEM

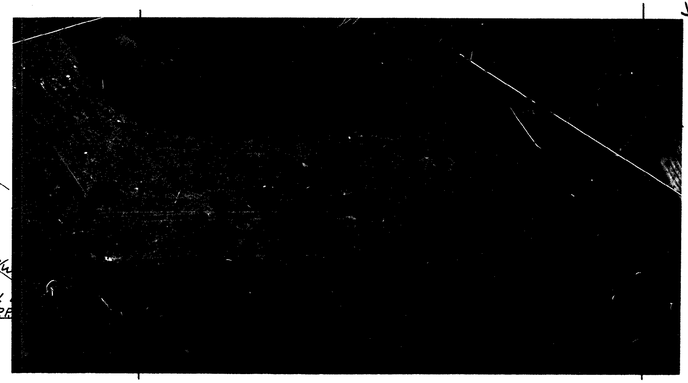
# 16" FORCE MAIN ALONG POWER EAS.

SHEET OF 42

DATE May--78
Traced 01-86

CA 68505.71
C 450381-05





N

P O W E R E A S E M E N T

EXISTING GRADE

NOTE: FILL GRADE HIGHER THAN SHOWN HERE DUE TO CONST. OF 375 BY-PASS

42" COVER (MIN.)

42" COVER (MIN.)

ABANDONED SEWER LINES DUE TO HIGHWAY PROJECT (SOCASTEE BRIDGE)

NOTE: CUT AND REMOVE 16" 90° BEND AND THRUST BLOCK. INSTALL 2-16" MJ SPLIT REPAIR SLEEVES.

NEW 16" FORCE MAIN

101' OF 30" STEEL CASING INSTALLED BY OPEN CUT METHOD.

203+76.16 16" FM TEE

203+95

204+96

205+00 45° BEND

196+00

200+00

208+00

| MH | RIM ELEV. | INV. ELEV. | % GRADE |
|---|---|---|---|
| 76A | | 11.04 | |
| 1 | 21.09 | 11.12 | 0.28 |
| 2 | 20.64 | 11.41 | 0.42 |
| 3 | 21.51 | 12.94 | 0.85 |
| 3A | 20.23 | 11.82 | 0.85 |
| 76B | 21.00 | 9.24 | 0.89 |

MH-1

MANHOLE NO. 76A

NEW MH 3A

NEW 10" PVC SS 230 L.F.

SEE DETAIL FOR CONNECTION OF 16" FM TO MH 76-A ON SHT 14A OF OUTFALL PART 4.

MANHOLE NO 76

SEE LISTE BELOW

NEW MH 76B

45° ELL

2-90° ELLS

MANHOLE NO 77

10" STUB

MANHOLE NO. 78

10" STUB

NORTH STUBS REMOVED AT REQUEST OF CSWSA 3-19-80 FROM MH 76 AND MH 77

25' EASEMENT

2-40' CORBEL TO LOWEST 4.0 DEEP

NEW 16" FM (CONC.) APPROX. LOCATION

M.B. 36" FM APPROX. 255'

NEW 16" FM APPROX. 250 LF OF 16" DIP

NEW ROAD 150' R/W

NEW ROAD 100' R/W

S.R. 375

S.R. 544

NEW 6"-20" FORCE MAINS SEE SHEET 43

SEE NOTE ABOVE

MANHOLE

DIP

MANHOLE

P O W E R E A S E M E N T

SR 375

102'

45'

SEE NOTE 2

40' OF 30" STEEL CASING INSTALLED BY OPEN CUT METHOD

NOTE: PROVIDE SPECIAL INTERIOR COATING FOR 16" FORCE MAIN FROM MANHOLE NO. 76A TO 300 FEET EAST OF MANHOLE

22.5° BEND

22.5° BEND

90° BEND

MANHOLE NO. 76A

TOP MH EL. 21.41

(2)-45° BENDS

10" STUB 10' LONG INV. S 9.00

INV. W 9.36

INV. N 9.49 (16" F.M.)

END PLUG AND PIPE

302' OF 24" VCP @ 0.10%

MANHOLE NO. 76

TOP MH EL. 21.64

INV. (IN) 9.12

INV. (OUT) 9.09

(2)-10' STUBS - 10' LONG INV. E 10.14 INV. N 10.13

327' OF 24" VCP @ 0.10%

MANHOLE NO. 77

TOP MH EL. 21.54

INV. (IN) 8.68

INV. (OUT) 8.63

END 6" CASING AND 16" FM

16" STUB - 10' LONG INV. S 9.22

296.5' OF 24" VCP @ 0.10%

MANHOLE NO. 78

INV. (IN) 8.43

INV. (OUT) 8.36

8" STUB - 10' LONG INV. N 9.25

10" STUB - 10' LONG INV. S 9.42

175.5' OF 24" VCP @ 0.10%

MANHOLE NO. 80

TOP MH EL. 20.42

40'-36" STL. CASING

SEE NOTE 2

INV. (IN) 8.18

INV. (OUT) 8.08

87.5' OF 24" DIP @ 0.10%

MANHOLE NO. 81

TOP MH EL. 19.83

TOP OF MH 19.79

INV. 6" FORCE MAIN @ 7.66

INV. 10" I.D. P.R.I. 8.02 (@ 0.1%)

INVS. 6.57 (30" STUB) - 5 (@ 0.09%) (DIP)

INV E 6.47

41' OF 30" VCP @ 0.09%

208+50

EXISTING GRADE

NOTES:

1. GROUND PROFILE, HORIZONTAL DISTANCES AND FINAL INVERTS REQUIRE FIELD VERIFICATION.
2. THE CONSTRUCTION PROCEDURE FOR CROSSING SR 544 AND S.R. 375 SHALL BE AS PER REQUEST FOR CHANGE 10-A

8-01-047/61-WS

RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| 3 | BRIDGE RELOCATION WORK | 1-13-82 |
| RFC | RELOCATED 24" VCP | 2-13-80 |
| 2 | REMOVED CASING | |
| RD | ADDED RECORD INFORMATION | 10-80 |

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: K.L.J. & P.A.B. | DATE: MAY '78

CHECKED BY: [illegible] | FILE NO: CA 68505.71

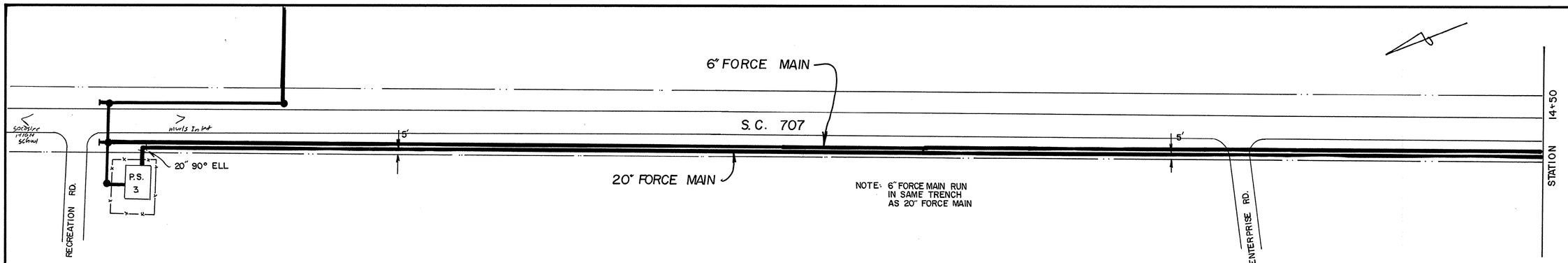
SCALE: 1"=50' HORIZ. 1"=5' VERT.

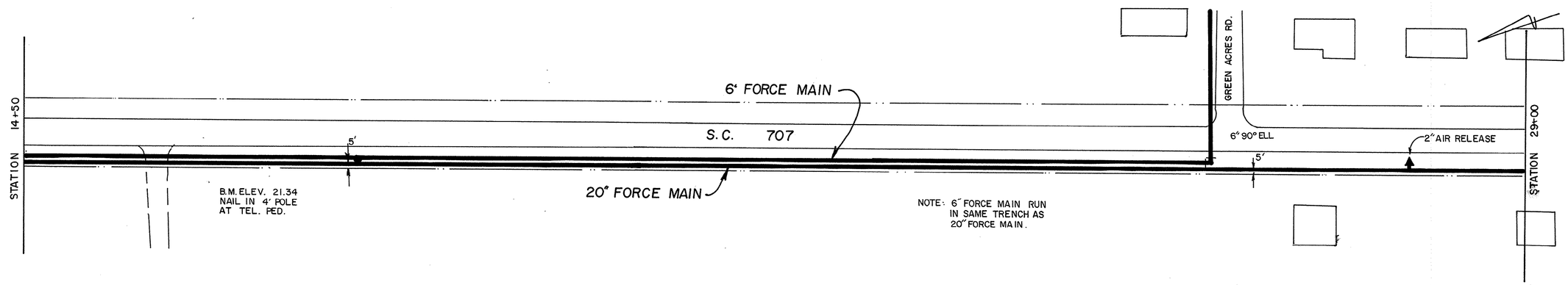
NEW 16" FORCE MAIN AND NEW 24" & 30" VCP GRAVITY SEWER ALONG POWER EASE.

SHEET NO. 42

C 450381-05

44




SEE INDEX MAP FOR THIS SHEET LOCATION.

B-01-048/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

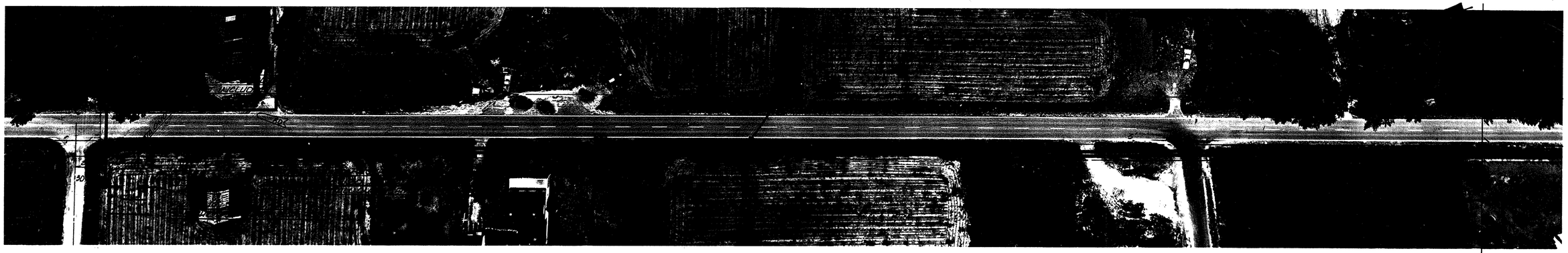
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

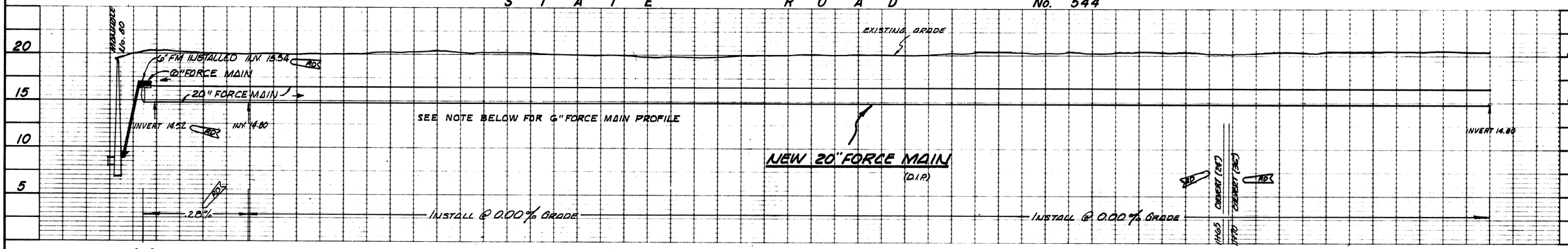
201 SEWER SYSTEM

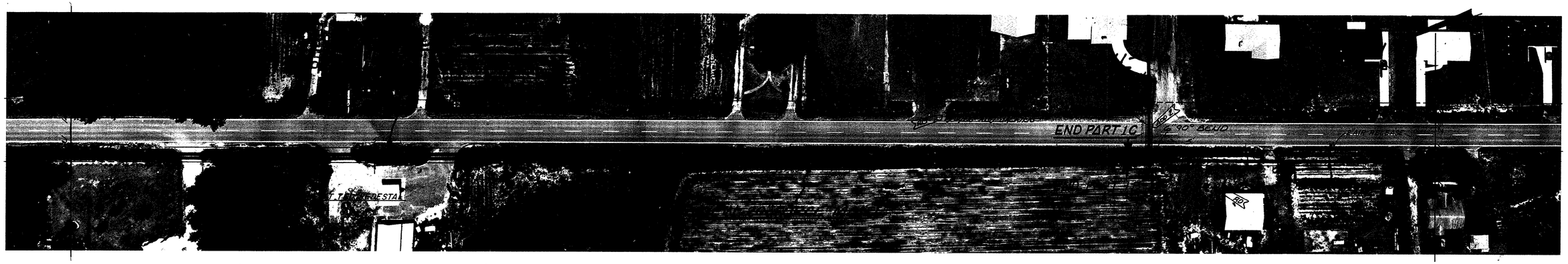
# 20" FORCE MAIN ALONG S.C. 707

SHEET 43 OF
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05

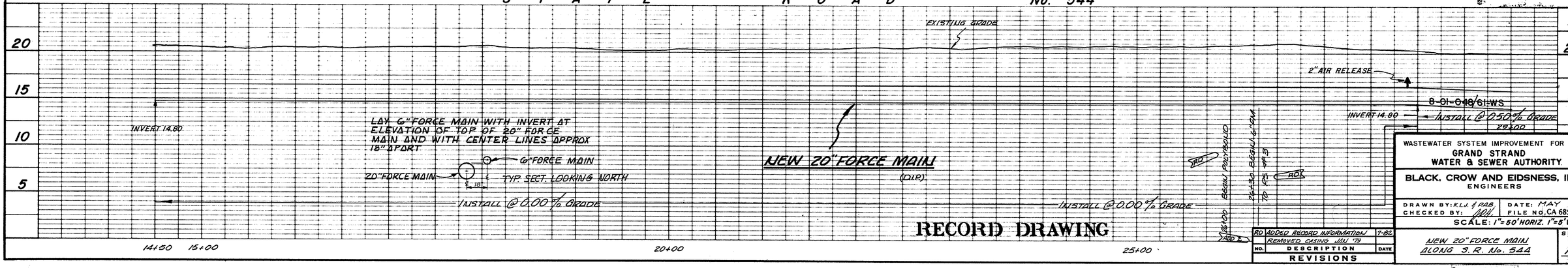


S T A T E R O A D No. 544




S T A T E R O A D No. 544




RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 7-82 |
| | REMOVED CASING JAN '79 | |

REVISIONS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY.

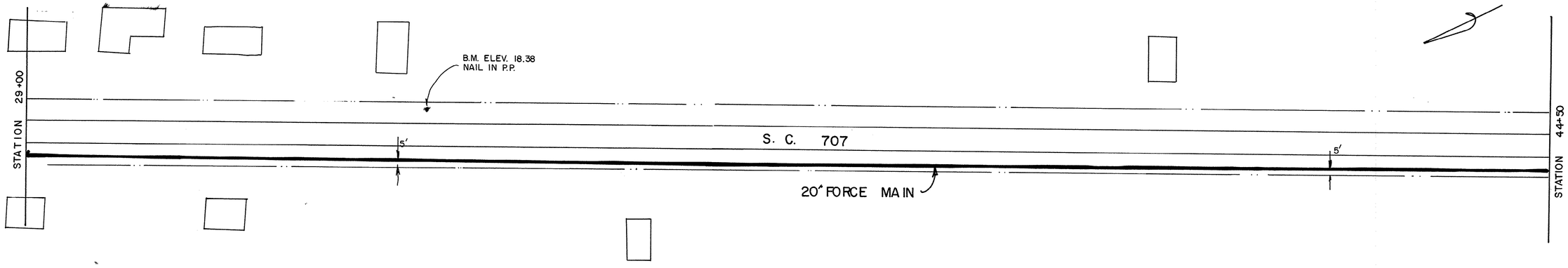
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

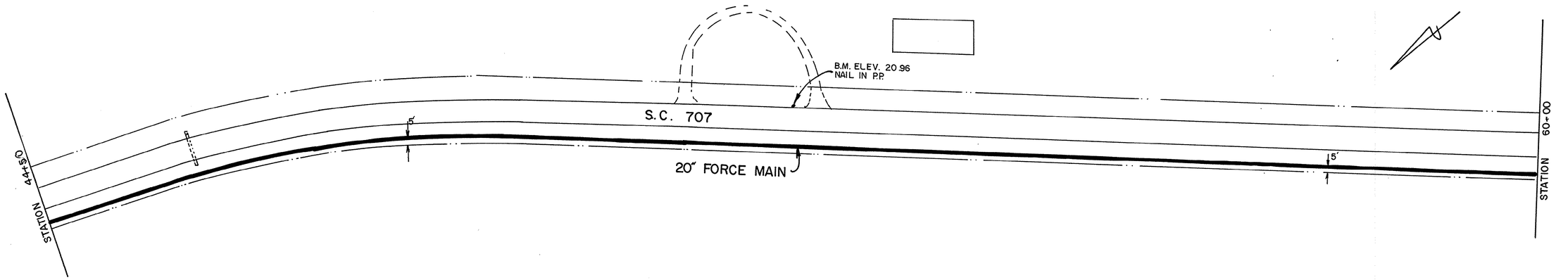
DRAWN BY: K.L.J. & D.A.B. | DATE: MAY '82
CHECKED BY: [illegible] | FILE NO. CA 68305.11
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 20" FORCE MAIN
ALONG S.R. No. 544

SHEET NO. 13

C 450381-05




SEE INDEX MAP FOR
THIS SHEET LOCATION.

8-01-049/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

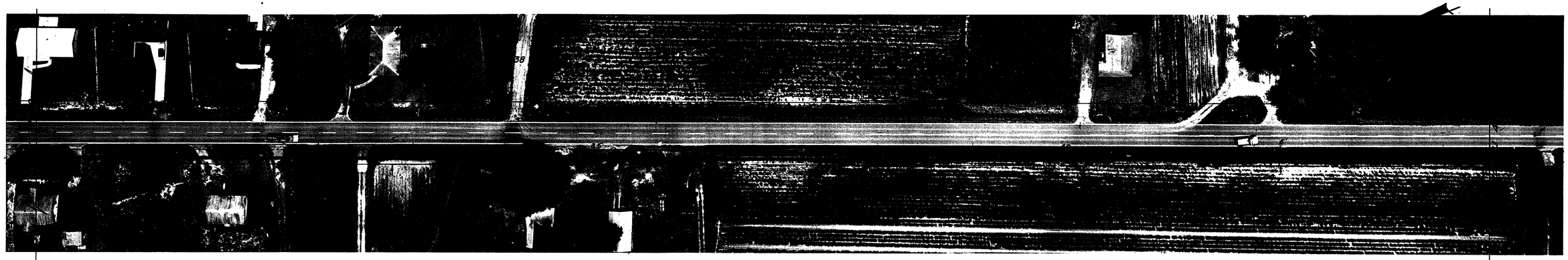
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

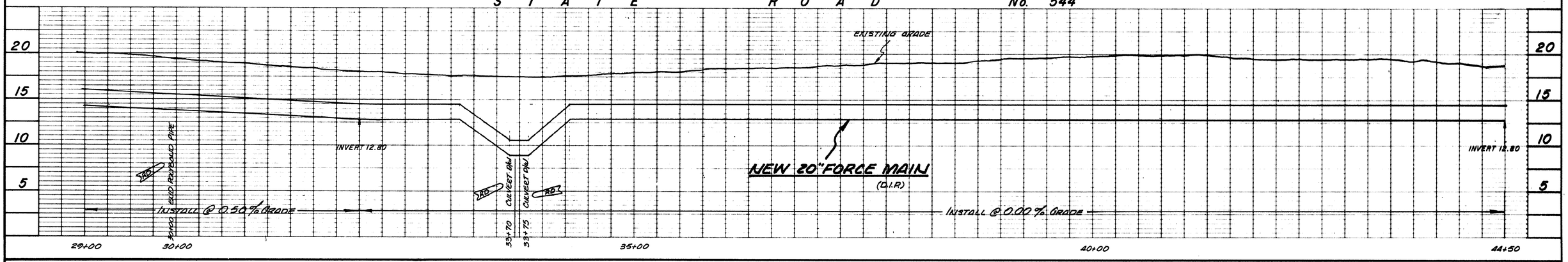
GRAND STRAND WATER & SEWER AUTHORITY

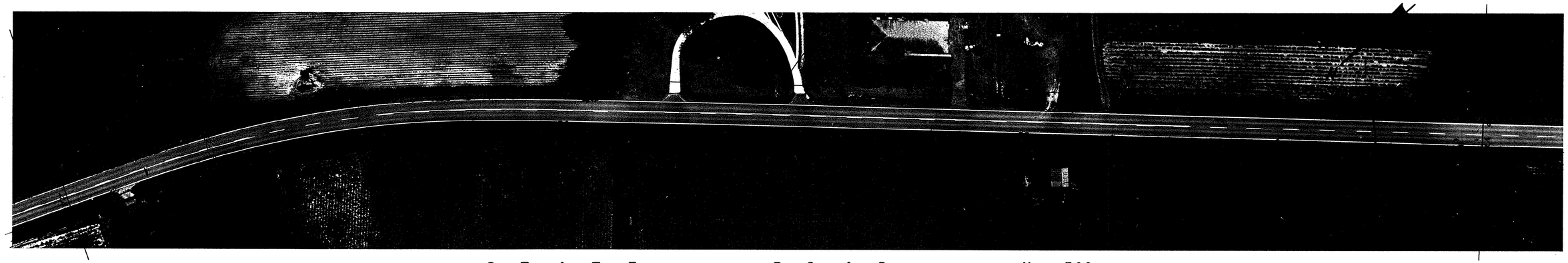
201 SEWER SYSTEM

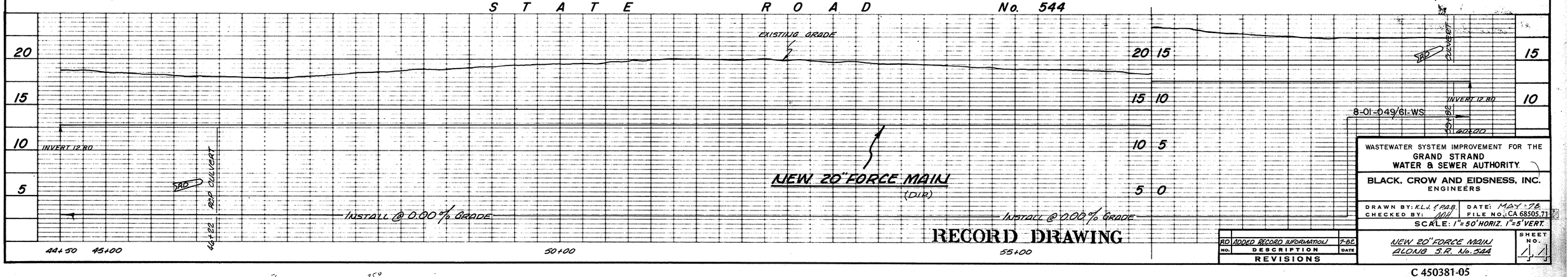
# 20" FORCE MAIN ALONG S.C. 707

SHEET OF 44
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05








8-01-049/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. & P.A.B. DATE: MAY '78
CHECKED BY: [illegible] FILE NO.: CA 68505.71

SCALE: 1"=50' HORIZ. 1"=5' VERT.

RECORD DRAWING

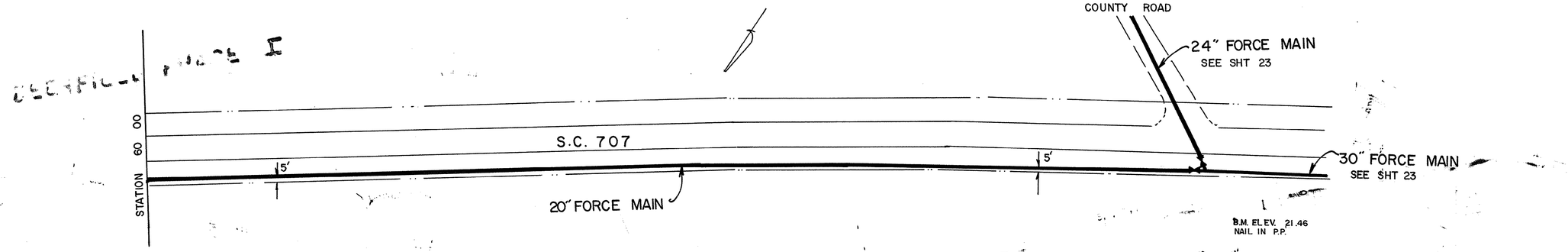
| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 7-82 |

REVISIONS

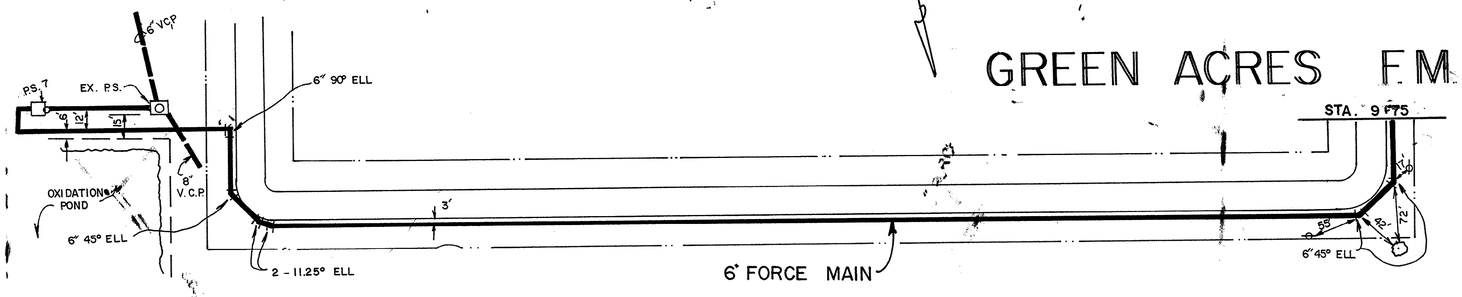
NEW 20" FORCE MAIN
ALONG S.R. No. 544

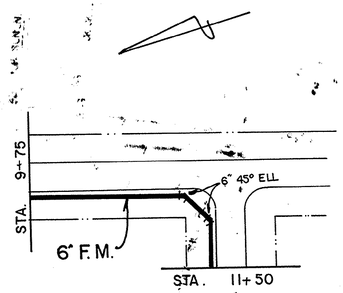
SHEET NO. 4

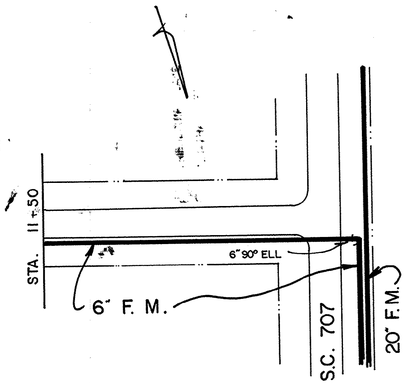
C 450381-05




# GREEN ACRES F.M.




SEE INDEX MAP FOR THIS SHEET LOCATION.

8-01-050/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

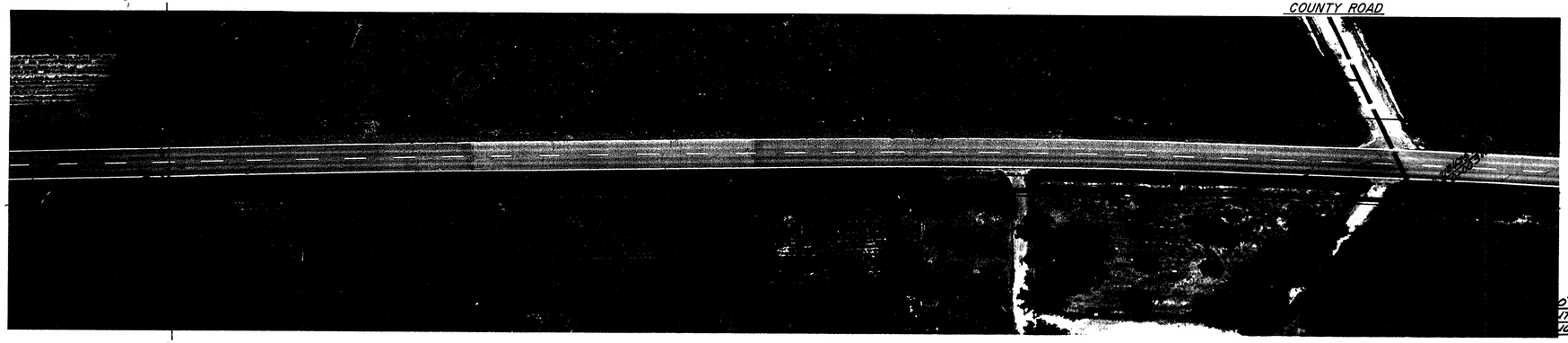
| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

# 20" FORCE MAIN ALONG S.C. 707

SHEET OF 45
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05




N

B.M. ELEV. 21.46
NAIL IN PP

"O" FORCE MAIN
JT. No. 23 FOR
JUATION & FITTINGS

S T A T E  R O A D  No. 544

EXISTING GRADE

INVERT 12.80

INVERT 12.80

INVERT 13.91

INVERT 13.91

INVERT 13.60

18.5

NEW 20" FORCE MAIN

INSTALL @ 0.00% GRADE

INSTALL @ 0.50% GRADE

SAD

CONC. COLLAR POURED AT 1ST JT. NORTH OF VALVE

60+00

65+00

70+00

NEW P.S. #7 (PART 2)
SEE PLOT PLAN SHT. P-9

6" V.C.P.

EXIST. P.S.

FOREIGN DRAIN

8" V.C.P.

EXIST OXIDATION PLAN

6" 90° BELLD

BEGIN PART 2 TIE TO 6" F.M. END @ 90° BEND WITH 10' PLUG.

END PART 1 - 6" PLUG AND TEMPORARY BLOCK FOR HYDROSTATIC TEST

6"-45° BELLD

(2) 11¼° BELLDS

RDY

43'

NEW 6" FORCE MAIN

A

A

STATION 9+75

6"-45° BELLD

6"-45° BELLD

RDY

N

TYPICAL SECTION 'A-A'

℄ PAVED RD.

℄ DITCH

3½'

2'

DITCH BOTTOM

INSTALL 6" F.M. WITH MIN. 30" COVER

6" MINIMUM BELOW DITCH BOTTOM

NEW 6" F.M. TO BE LOID ALONG SIDE NEWLY PAVED RD. AS INDICATED (±)

NOTE: 6" F.M. (PVC) MIN. COVER 24" - 30" TYP.

RDY

N

STATION 9+75

56'

76'

RDY

NEW 6" FORCE MAIN

STATION 11+50

GREEN ACRES

N

35'-OF 14" STEEL CASING INSTALLED BY BORING AND JACKING METHOD

STATION 11+50

6" 90° BELLD

END PART 1C

NEW 6" FORCE MAIN

NEW 20" FORCE MAIN

PART 1B

CONTACT HORRY COUNTY TELEPHONE CO. FOR LOCATION OF U.G.T.C.

RECORD DRAWING

JAG 2

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REVISIONS | |
| RD | ADDED RECORD INFORMATION | 7-82 |
| | REMOVED CASING JAN. '79 | |

8-01-050/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

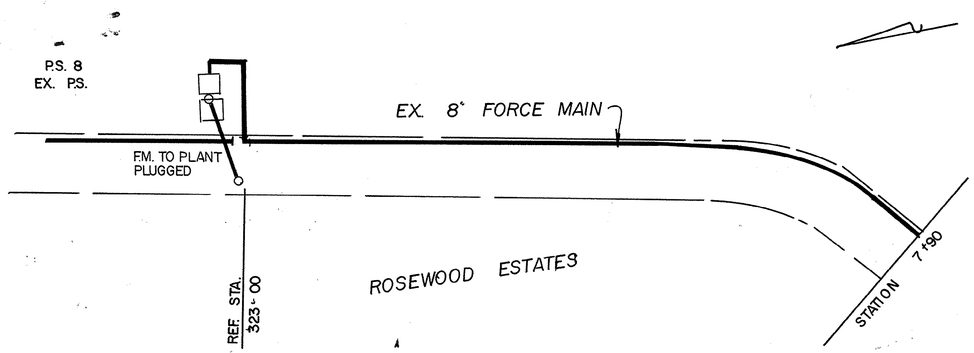
DRAWN BY: K.L.J. & P.A.B. DATE: MAY '78
CHECKED BY: WR FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

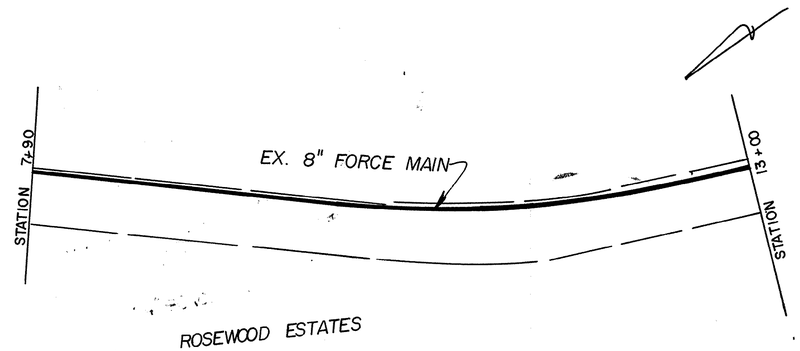
NEW 20" FORCE MAIN ALONG S.R. No. 544

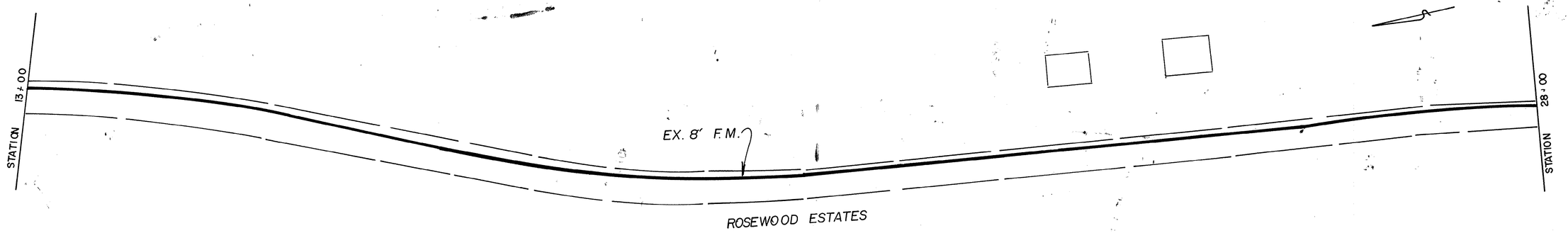
SHEET NO. 45

C 450381-05

50



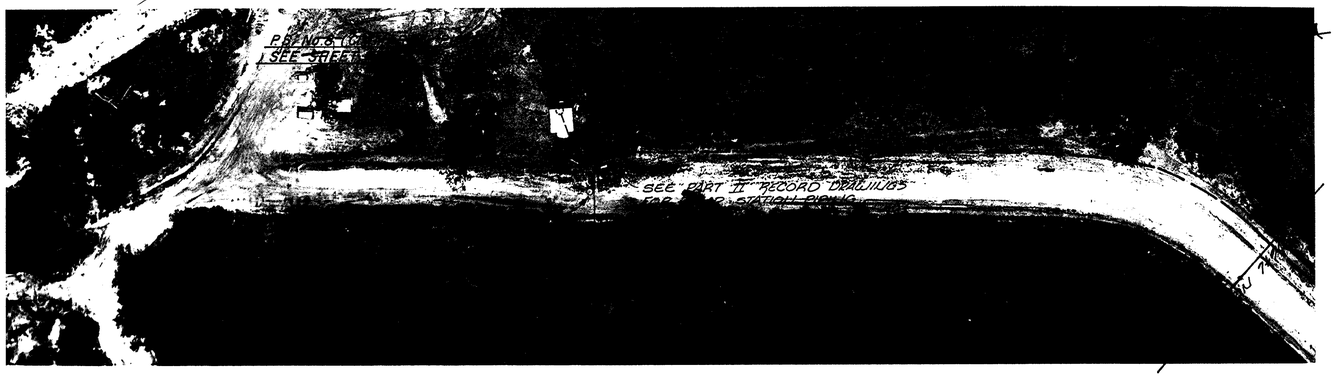



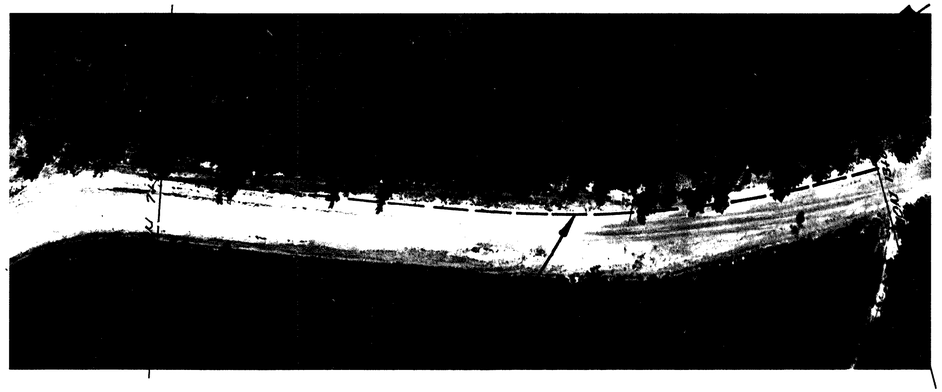

SEE INDEX MAP FOR
THIS SHEET LOCATION.

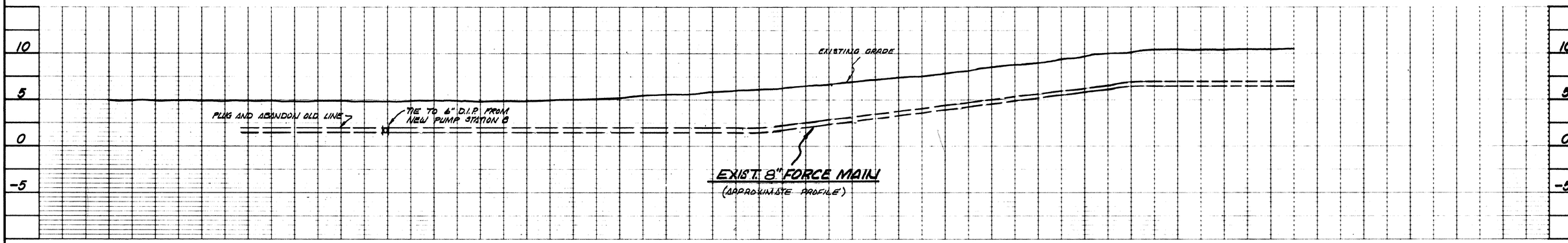
8-01-051/61-WS

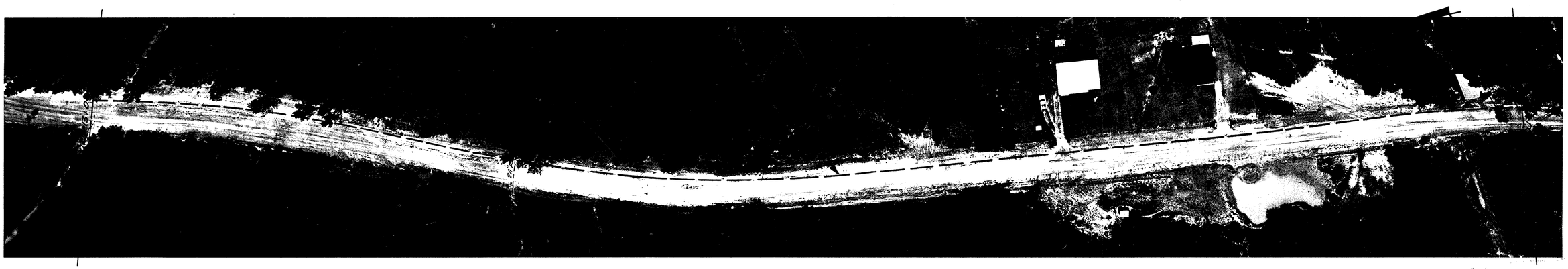
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 50 0 50 100<br>Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date REVISION By Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 8" F.M. ALONG ROAD FROM P.S. No. 8 |

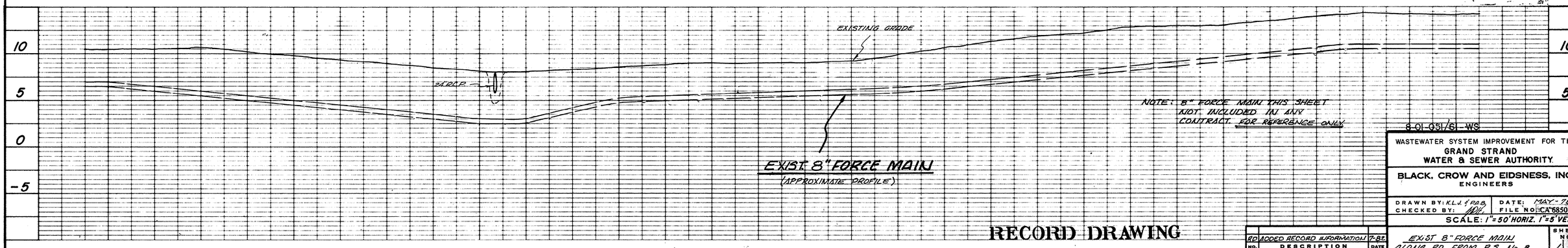
SHEET 46 OF
DATE May--78
Traced 01-86
CA 68505.7;
C 450381-05








RECORD DRAWING

8-01-051/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: K.L.J. & P.A.B. | DATE: MAY-78
CHECKED BY: [illegible] | FILE NO: CA 68505,71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

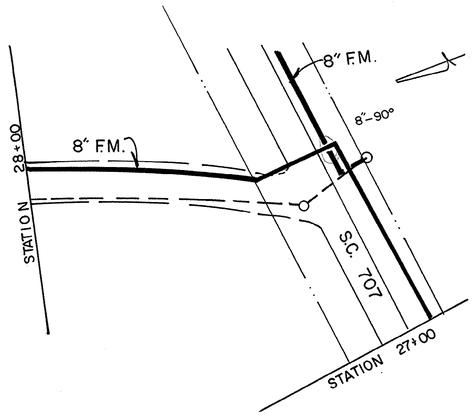
| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | ADDED RECORD INFORMATION | 7-82 |

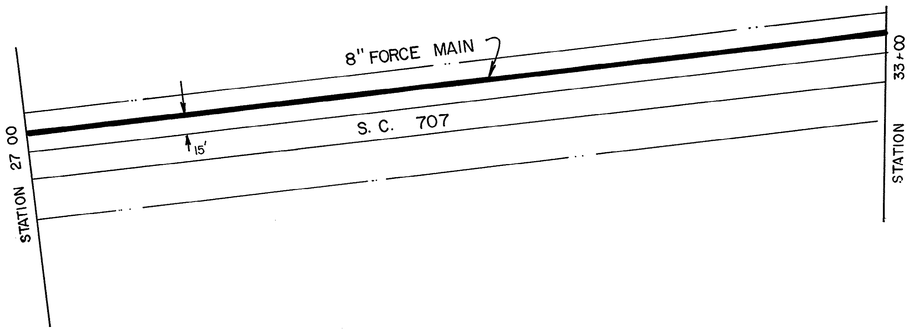
REVISIONS

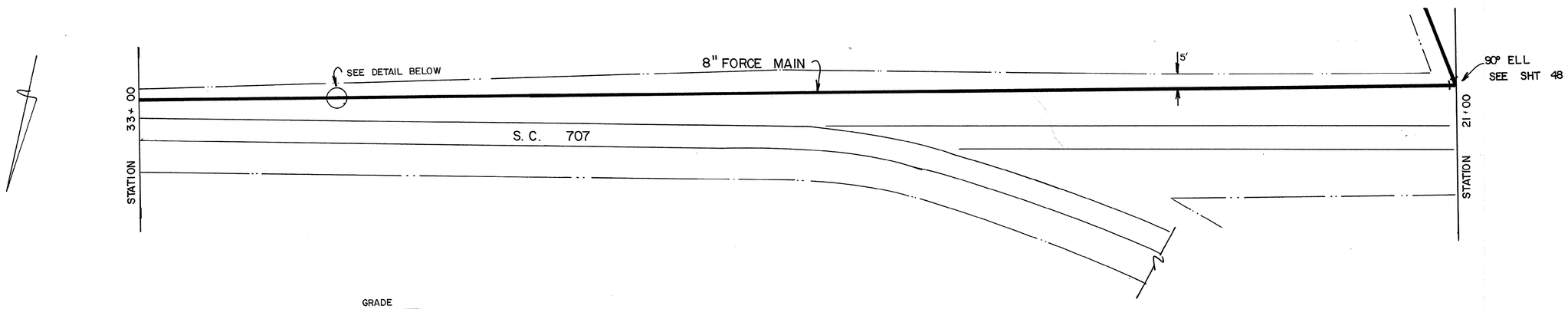
EXIST 8" FORCE MAIN
ALONG RD. FROM P.S. No. 8

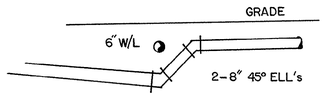
SHEET NO. 4 OF 8

C-450381-05




Brave Village Shopping Center

Socastee High School

SEE INDEX MAP FOR THIS SHEET LOCATION.

8-01-052/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black, Crow and Eidsness. It has been traced by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

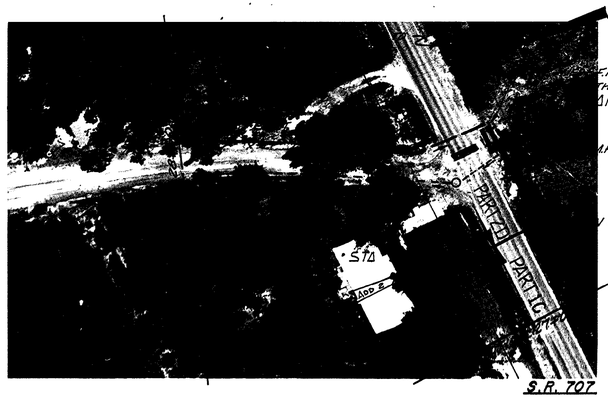
201 SEWER SYSTEM

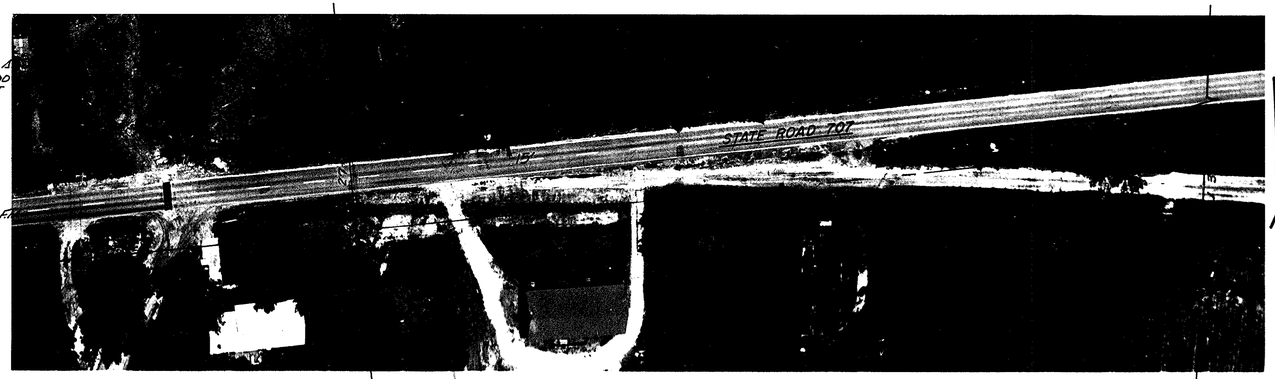
# 8" FORCE MAIN ALONG S.C. 707

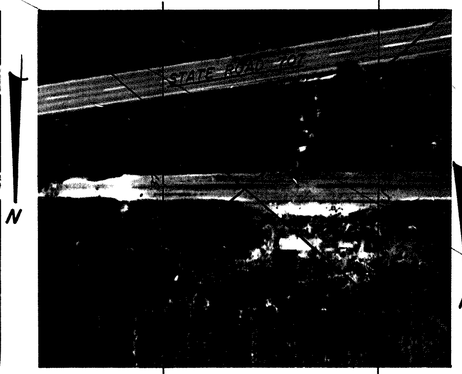
SHEET 47 OF

DATE May--78
Traced 01-86

CA 68505.71
C 450381-05

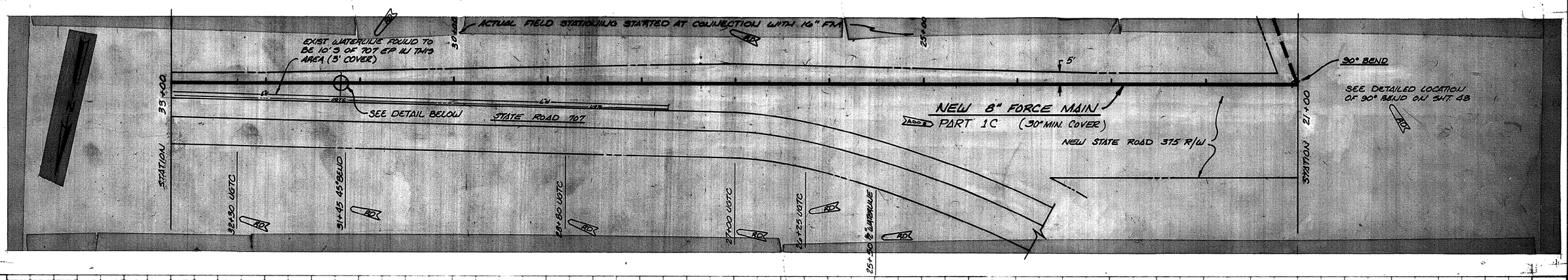


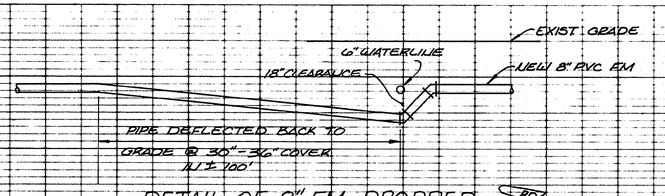




NOTE: CONTRACTOR FOR PART 2D TO TIE TO END OF NEW 8" F.M. INSTALLED BY CONTRACTOR FOR PART 1C. CONNECTIONS AND REROUTING TO BE MADE BY PART 2D CONTRACTOR AFTER W.W.T.P. IS READY FOR OPERATION.

ADD 2




DETAIL OF 8" FM DROPPED BELOW EXIST 6" WATERLINE
NTS.

8-01-052/61-WS
53+00

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: KLJ / DDB | DATE: MAY '78
CHECKED BY: JWH | FILE NO. CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5 VERT.

ADD 2 ADDED RECORD INFORMATION 7-80

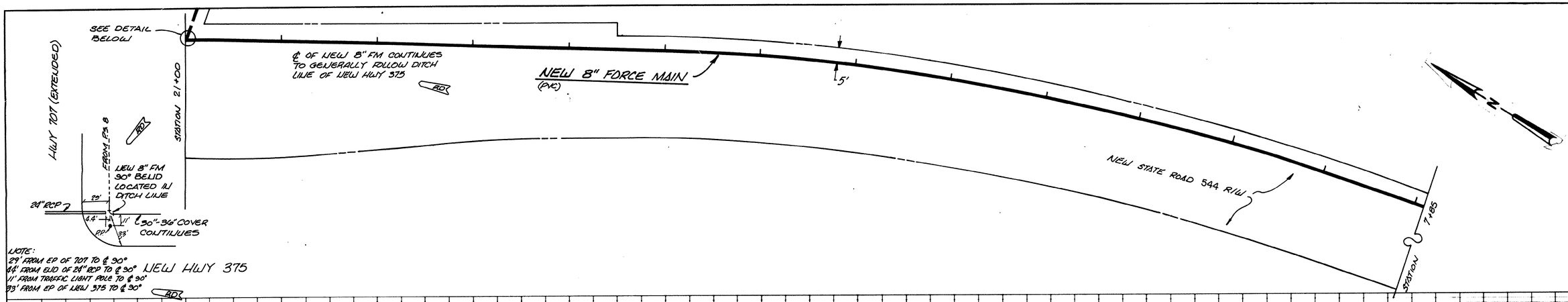
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | CHG'D 8" F.M. TO PART 1C-ADDED NOTE | |
| | 2-1-79 | |
| | REVISIONS | |

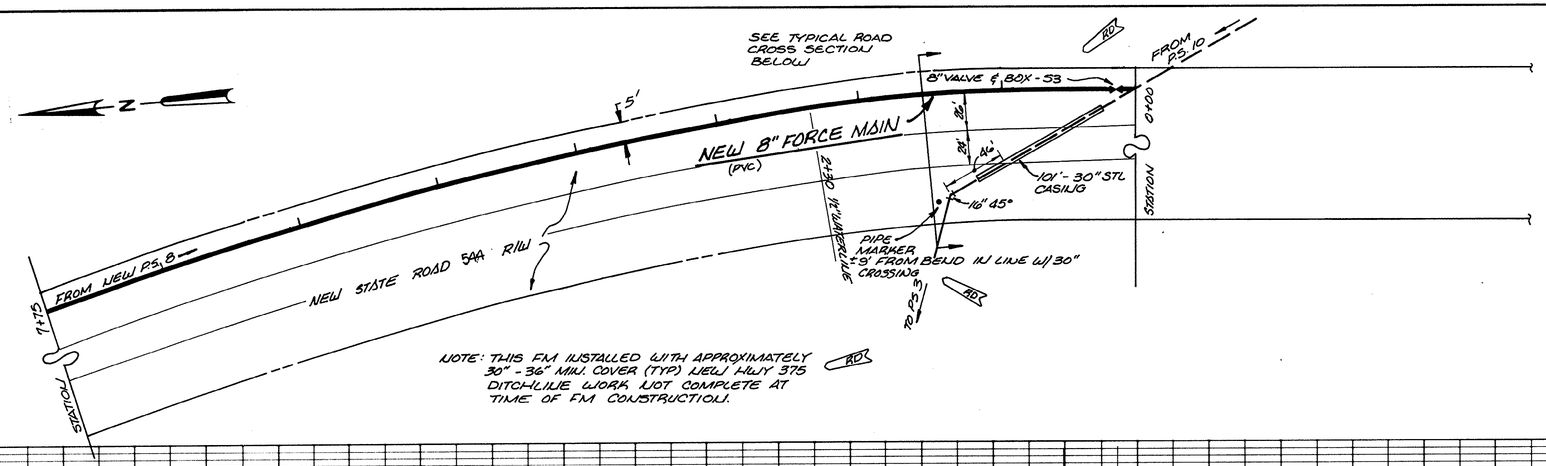
NEW 8" FORCE MAIN ALONG S.R. No. 707

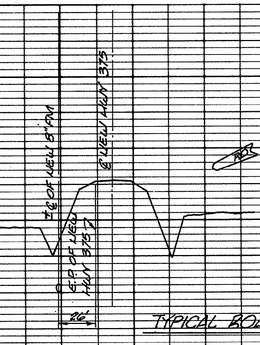
SHEET NO. 47

RECORD DRAWING

C 450381-05




TYPICAL ROAD SECTION

**RECORD DRAWING**

8-01-053/SI-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: BW | DATE: MAY 1978
CHECKED BY: | FILE NO.: CA 68505.71

SCALE: 1"=50'

NEW 8" FORCE MAIN ALONG NEW STATE ROAD 544 RIGHT-OF-WAY

SHEET NO. 48

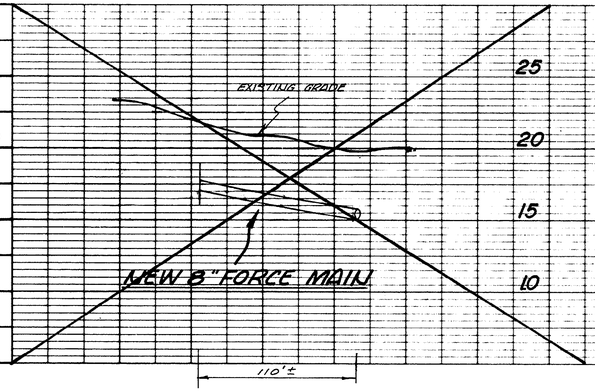
C480381-05

| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 7-81 |

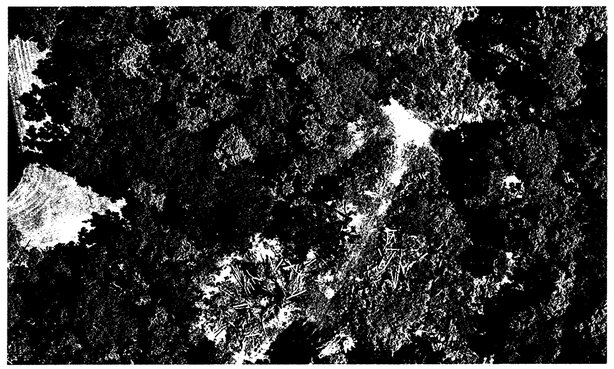
REVISIONS

fm1693

PANEL NOT USED



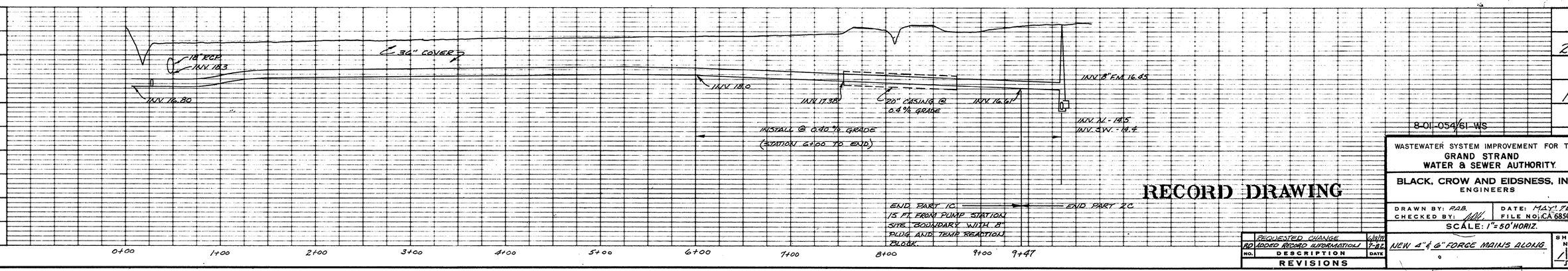

NOTE: SEE SHEET NO. 10 FOR PIPE LOCATION AND PROFILE OF 6" F.M. TO PUMP STA. #6



PANEL NOT USED

PANEL NOT USED

SHEET NOT USED IN REDRAW OR M-FILMING




RECORD DRAWING

8-01-054/61 WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

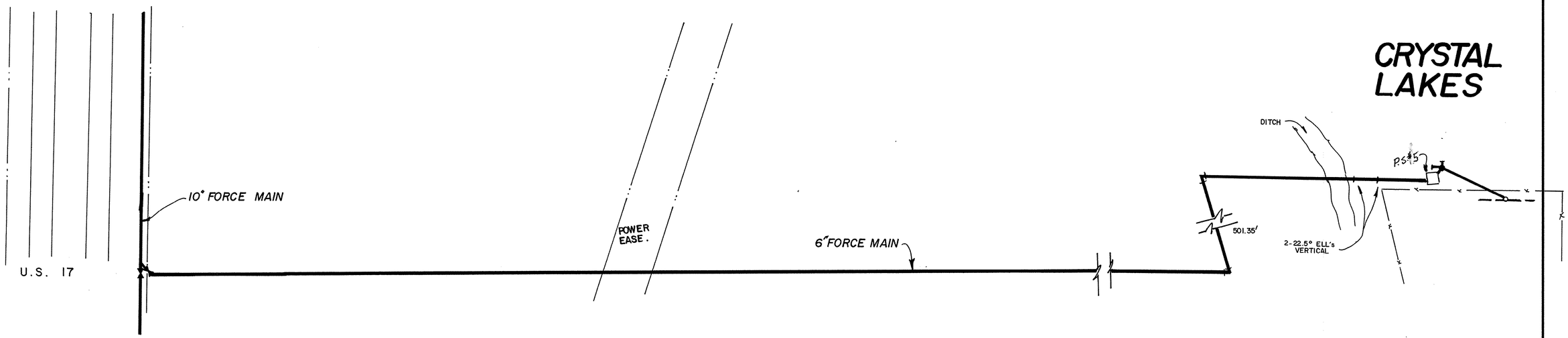
DRAWN BY: RAB. DATE: MAY '78
CHECKED BY: FILE NO: CA 68505.71
SCALE: 1"=50' HORIZ.

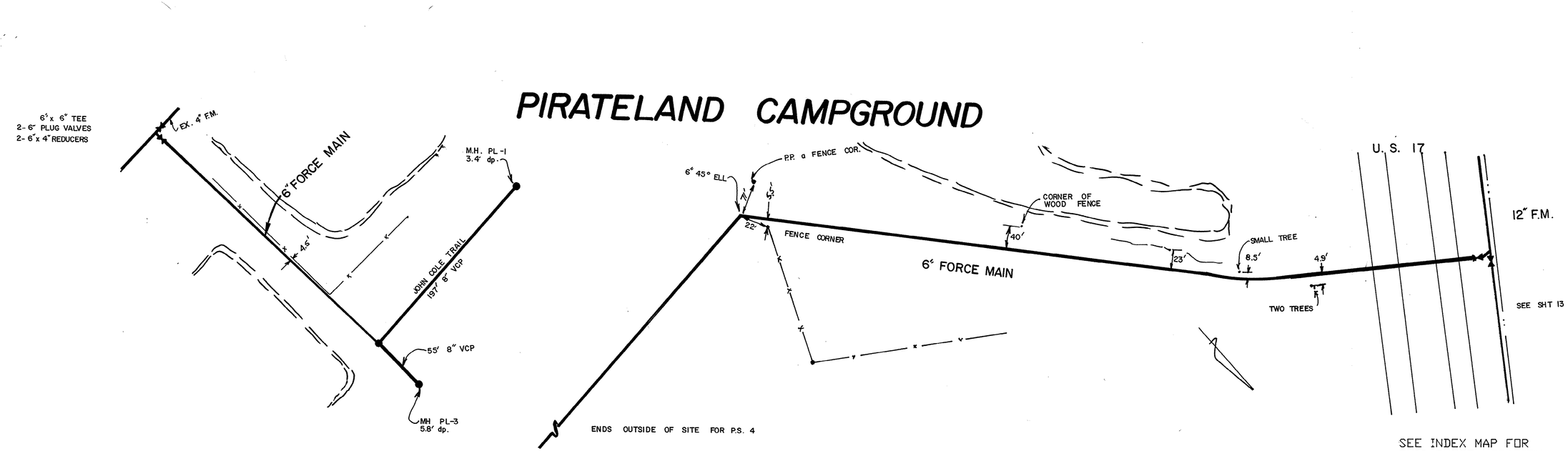
| NO. | REVISIONS DESCRIPTION | DATE |
|---|---|---|
| AD | REQUESTED CHANGE ADDED RECAD INFORMATION | 6/8/79 7-82 |

NEW 4" & 6" FORCE MAINS ALONG

SHEET NO. 49

C 450381-05




8-01-055/61-WS

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black, Crow and Eisness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 6" FORCE MAIN FROM PS 5 TO PS 4 | SHEET 50 OF<br>DATE May--88 Traced 01-86<br>CA 68505.71 C 45038;-05 |

SEE SHEET No. 12
FOR CONTINUATION
AND FITTINGS

N

P.S. No. 5
(CRYSTAL LAKES)
SEE SHEET No. P-9
FOR PLOT PLAN

MAKE 107°± DEFLECTION WITH 90° BEND AND PIPE JOINT DEFLECTIONS

STA. 17+24 PIPE MARKER

END PART 1
PLUG & TEST

BEGIN PART 2

PROP. MANHOLE

56'±

INV. 13.18
INV. 0.88

INV. 8.0

INV. -0.88

25' EASEMENT

25'

501.35'

2 - 22½° BENDS (VERTICAL)

EXISTING MANHOLE
TOP 18.15
INV. 13.36

MAKE 105°± DEFLECTION WITH 90° BEND AND PIPE JOINT DEFLECTIONS

STA. 12+22 PIPE MARKER

NOTE: PROVIDE POLYETHYLENE WRAP FOR 6" FORCE MAIN FROM 50 FT. SOUTH EAST OF DITCH CENTER TO END OF MAIN. (±130FT.)

ADD

U.S. HIGHWAY No. 17

ORIGINAL ROUTE

APPROX. 350'

NEW 10" FORCE MAIN

NEW 6" FORCE MAIN

25' EASEMENT

POWER EASEMENT

NEW 8" FORCE MAIN

EXISTING GRADE (APPROXIMATE)

NEW 10" FORCE MAIN

36" COVER (MIN.)

NEW 6" FORCE MAIN

SPOIL BANK

PROP. SLAB ELEV. 18.5

PROP. 6" U.G.P.

56'±

INV. 7.67 ADD

ANCHORED W/BLOCK & REBAR

2 - 22½° BENDS (VERTICAL)

INV. 4.0 ADD

COATED RODS ADD

17+10 CENTERLINE

PART 1

PART 2

0+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 17+00 18+00

20 15 10 5

6"x6"x6" TEE
2 - 6" PLUG VALVE & BOX
2-6"X4" REDUCERS

CONTRACTOR TO TIE TO EXISTING 4" FORCE MAIN ADD

EXIST TV CABLE

INV. 8.67
INV. 8.56

2-8" VCP STUBS INSTALLED AT THE REQUEST OF THE CAMPGROUND MANAGEMENT

NEW 8" INV. 8.48

EXISTING 6" GRAVITY LINE ABANDONED ACCORDING TO CAMPGROUND MANAGEMENT

NEW 6" FORCE MAIN
475'±

MANHOLE PL-1 ADD

MANHOLE No. PL-1 (TOP ELEV. 12.45) (INV. 3.0) ADD

U.S. HIGHWAY No. 17

54" COVER

NEW 6" FORCE MAIN

MARKER

TOP ELEV. 9.45
INV. S 3.62
INV. E 3.61

TV 1' DEEP

PART 1 ENDS WITH 2'-8" VCP STUBOUT TO EAST. M.H. LOCATION TO BE FIELD VERIFIED BY ENGINEER.

MANHOLE No. PL-3

PART 1 ENDS OUTSIDE OF SITE FOR PS. NO 4 AT LOCATION DESIGNATED BY ENGINEER

EXISTING GRADE

36" COVER (MIN.)

* RAISED 4' TO GET ABOVE WATER TABLE

NEW 12" FORCE MAIN

* INVERT

24" DIA. STEEL CASING

INSTALL @ 1.00 % GRADE (DO NOT EXCEED)

9+47 CABLE TV 1' DEEP

8+50 2" WATERLINE 1' DEEP

8+33 2" WATERLINE 1' DEEP

8+17 PHONE 2' DEEP

8+02 1" WATERLINE (WEST EP)

7+43 45° BEND

7+42 ELIC DIP BEGIN PVC

10+00 9+00 8+00 7+00 6+00 5+00 4+00 3+00 2+00 1+00 0+00

15 10 5 0

8-01-055/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY.

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: GEK. DATE: MAY 78
CHECKED BY: FILE NO: CA 68505.11

SCALE: 1"=50' HORIZ. 1"=5' VERT.

RECORD DRAWING

ADD RECORD INFORMATION

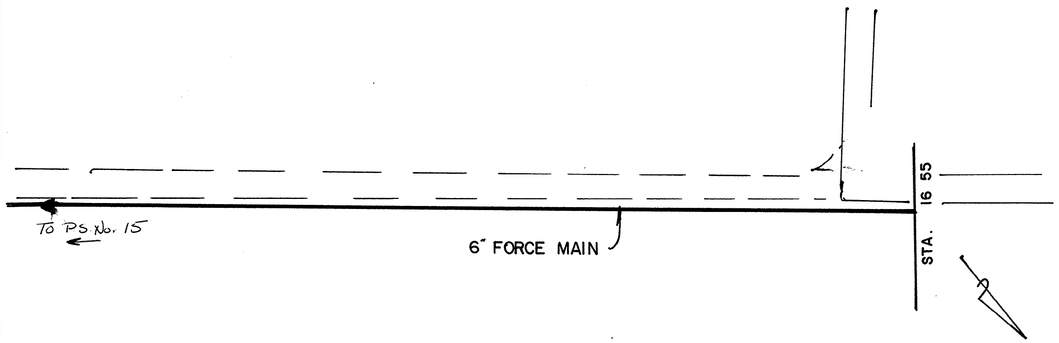
| NO. | DESCRIPTION | DATE |
|---|---|---|
| | CHG 10"FM. TO 12"FM 2-1-79 | |
| | REQUEST FOR CHANGE | 6-79 |

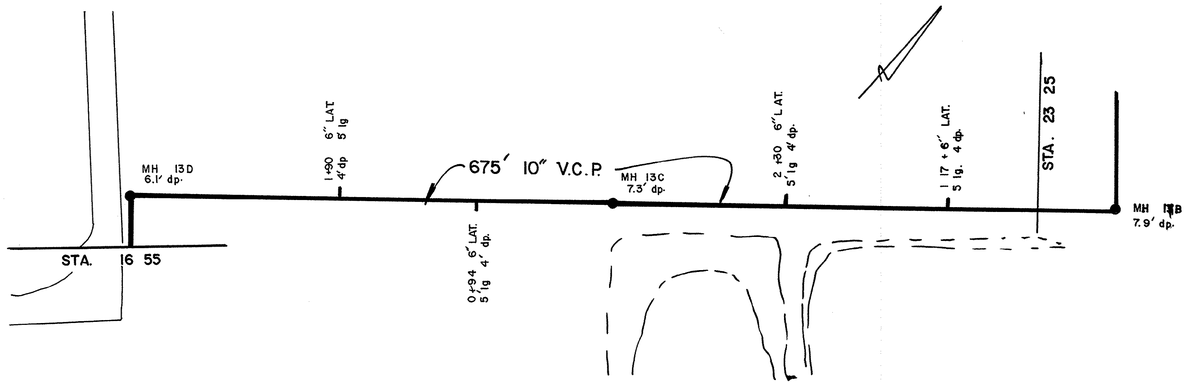
REVISIONS

NEW 6" FORCE MAIN FROM PS. No. 5 AND PS. No. 4

SHEET NO. 50

C 450381-05



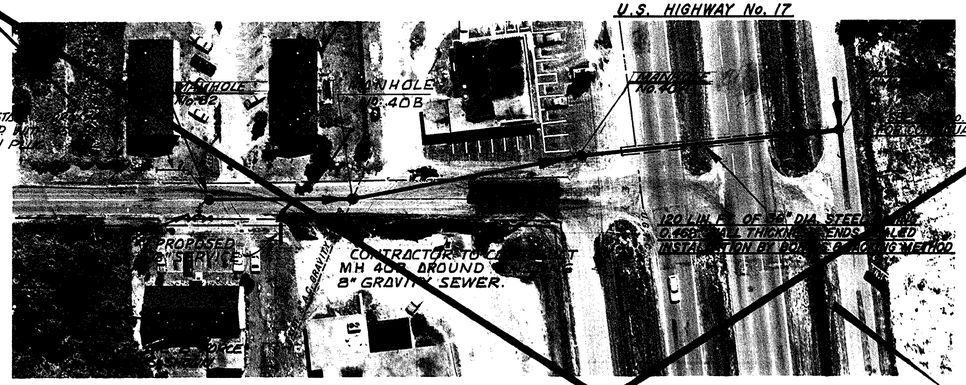




SEE INDEX MAP FOR
THIS SHEET LOCATION.

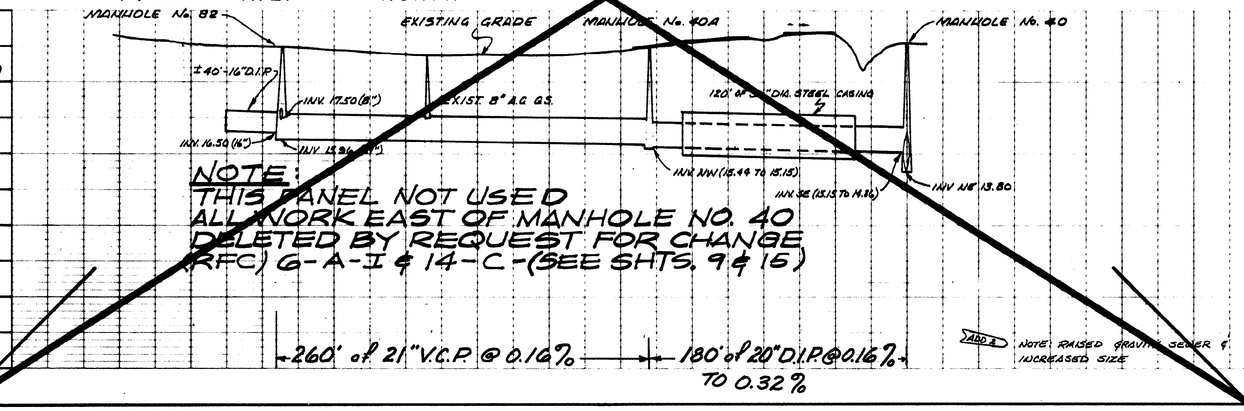
8-01-056/61-WS

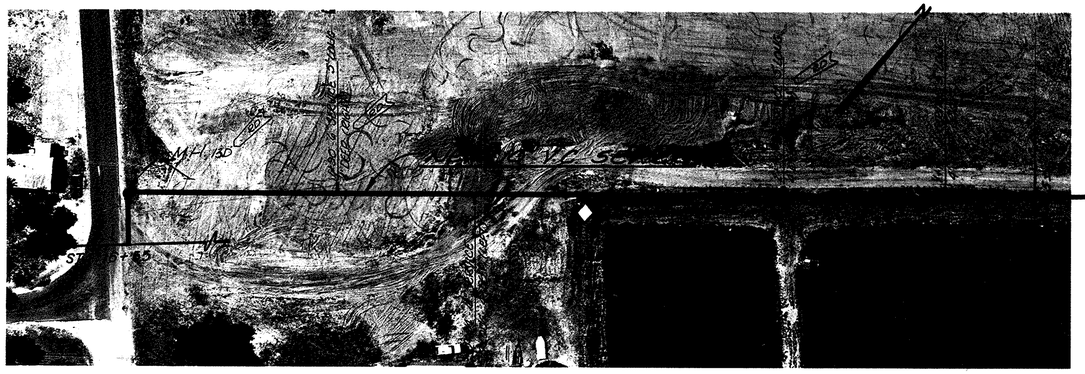
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100 Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 15" V. C. P.<br>16" D. I. P. | SHEET 51 OF<br>DATE May-78 Traced 01-86<br>CA 68505.71<br>C 450381-05 |

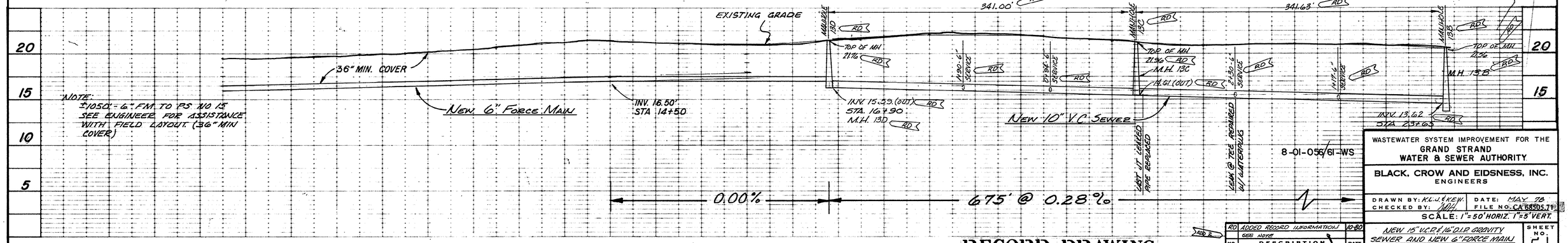
U.S. HIGHWAY No. 17




17TH AVE. NORTH






| NO. | DESCRIPTION | DATE |
|---|---|---|
| RD | ADDED RECORD INFORMATION | 10-80 |
| | SEE NOTE | |

REVISIONS

RECORD DRAWING

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

8-01-056/61-WS

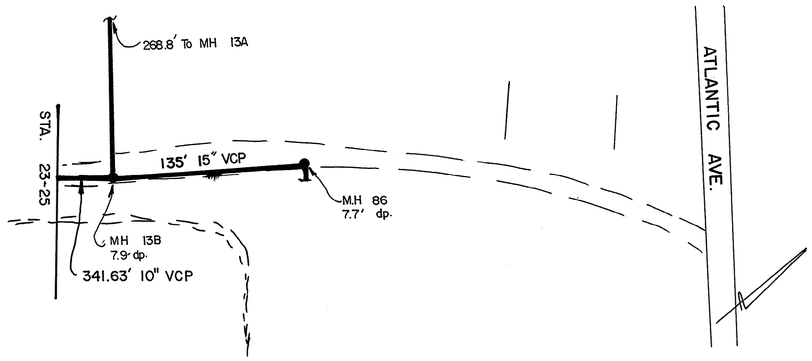
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

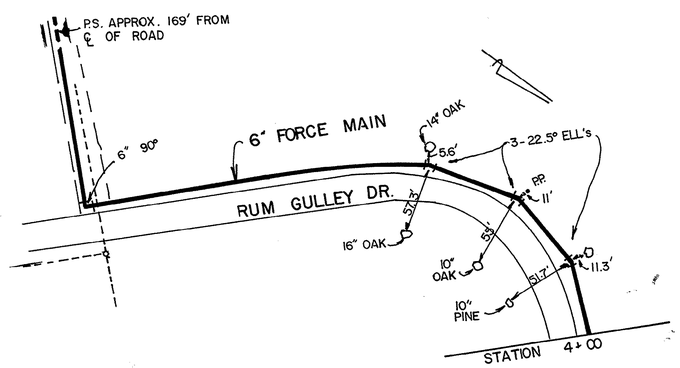
DRAWN BY: K.L.J. & K.W. DATE: MAY 78
CHECKED BY: FILE NO: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

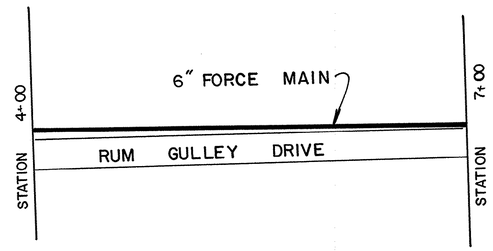
NEW 15" V.C.P. & 16" DIP GRAVITY SEWER AND NEW 6" FORCE MAIN ALONG 17TH AVE. N.

SHEET NO. 51

C 450381-05




SEE INDEX MAP FOR THIS SHEET LOCATION.

8-01-057/61-WS

50 0 50 100
Graphic Scale

This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been tracea by GSWSA to be Microfilmed.

| No. | Date | REVISION | By | Appd. |
|---|---|---|---|---|

GRAND STRAND WATER & SEWER AUTHORITY

201 SEWER SYSTEM

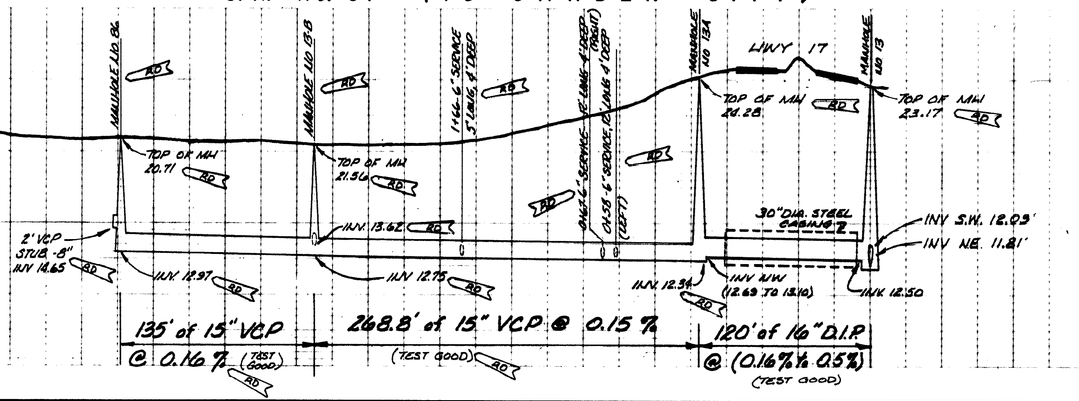
15" & 16" GRAVITY & 6" F.M. ON S.C. 51

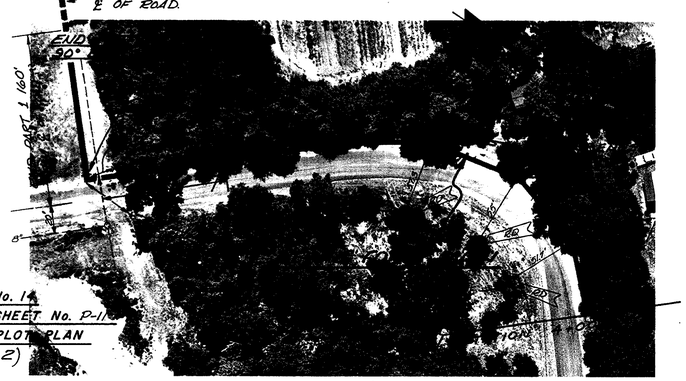
SHEET OF 52
DATE May--78
Traced 01-86
CA 68505.71
C 450381-05

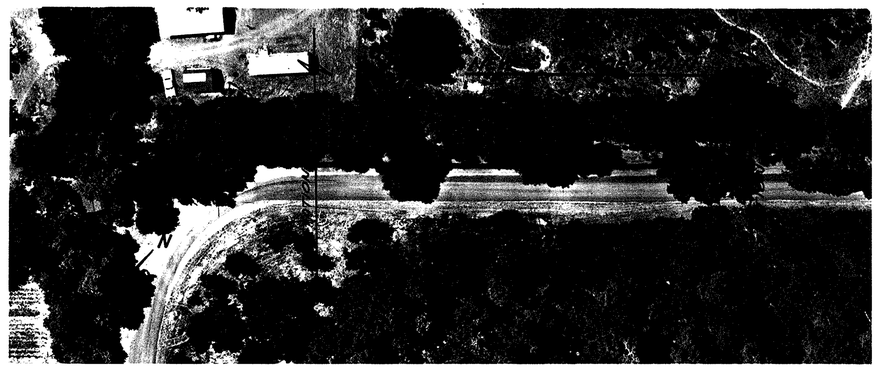
SR No. 51
(TO GARDEN CITY)

U.S HIGHWAY No. 17

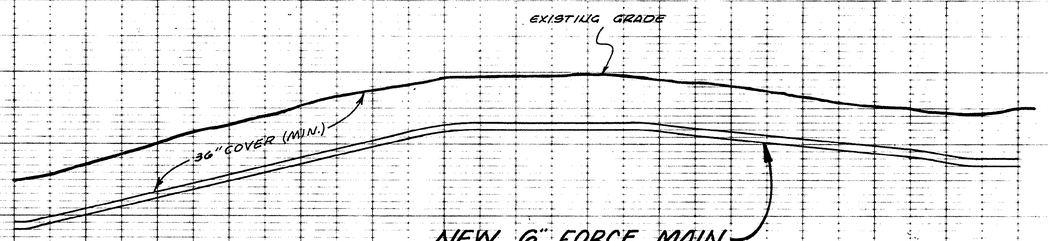
S. R. No. 51 (TO GARDEN CITY)






RUM GULLEY DRIVE




RECORD DRAWING

| NO. | DESCRIPTION | DATE |
|---|---|---|
| | REQUEST FOR CHANGE | 6/79 |
| RD | ADDED RECORD INFORMATION | 9-80 |

REVISIONS

8-01-057/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

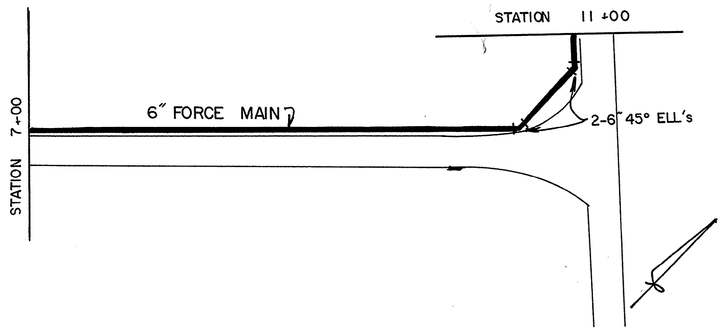
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

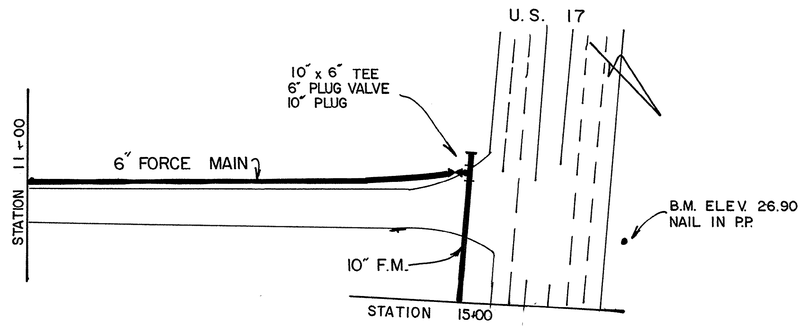
DRAWN BY: GEH. DATE: MAY 78
CHECKED BY: FILE NO.: CA 68505.71
SCALE: 1"=50' HORIZ. 1"=5' VERT.

NEW 10" & 15" V.C.P. & 16" D.I.P. GRAVITY SEWER AND NEW 6" FORCE MAIN ALONG S.R. No. 51

SHEET NO. 52

C 450381-05



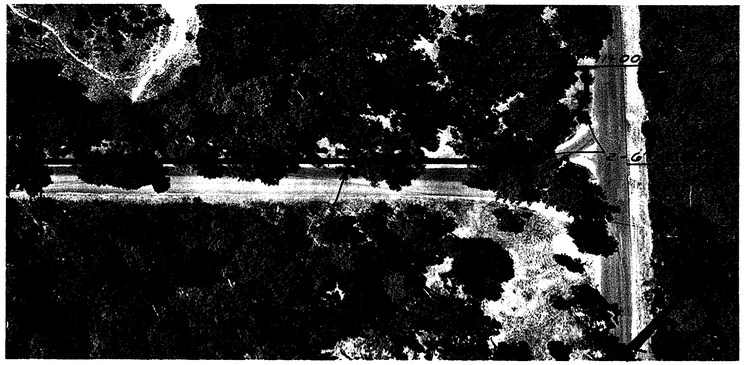

SEE SHT 1

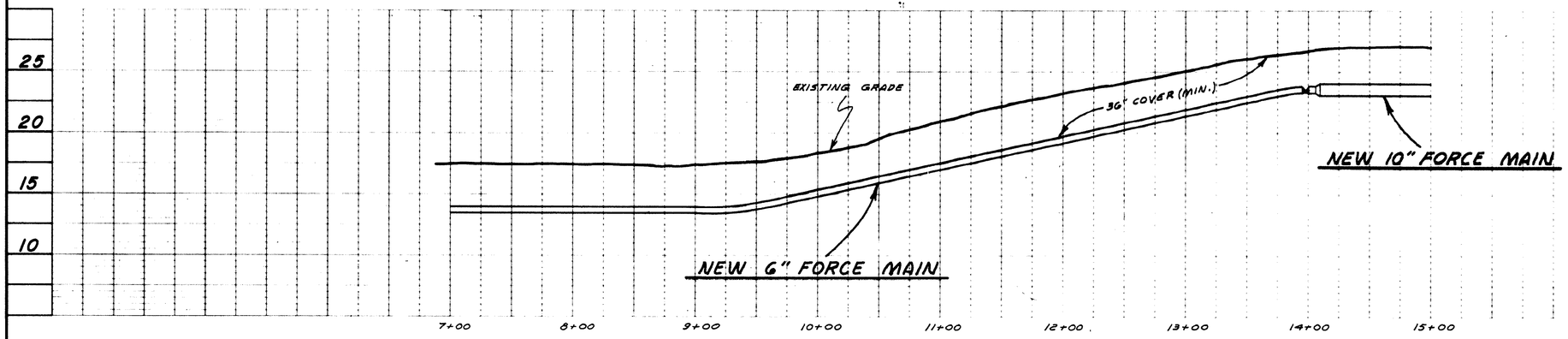
# MT. GILEAD

SEE INDEX MAP FOR
THIS SHEET LOCATION.

8-01-058/61-WS

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 0 50 100<br>Graphic Scale | | This Drawing is a Tracing of an original design by Black,Crow and Eidsness. It has been traced by GSWSA to be Microfilmed. | No. | Date | REVISION | By | Appd. | GRAND STRAND WATER & SEWER AUTHORITY | 201 SEWER SYSTEM | 6" & 10" FORCE MAINS ALONG U.S. HWY 17 | SHEET OF 53<br>DATE May--78<br>Traced 01-86<br>CA 68505.71<br>C 450381-05 |





8-01-058/61-WS

WASTEWATER SYSTEM IMPROVEMENT FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: GEK | DATE: MAY 78
CHECKED BY: | FILE NO.: CA 68505.71

SCALE: 1"=50' HORIZ. 1"=5' VERT.

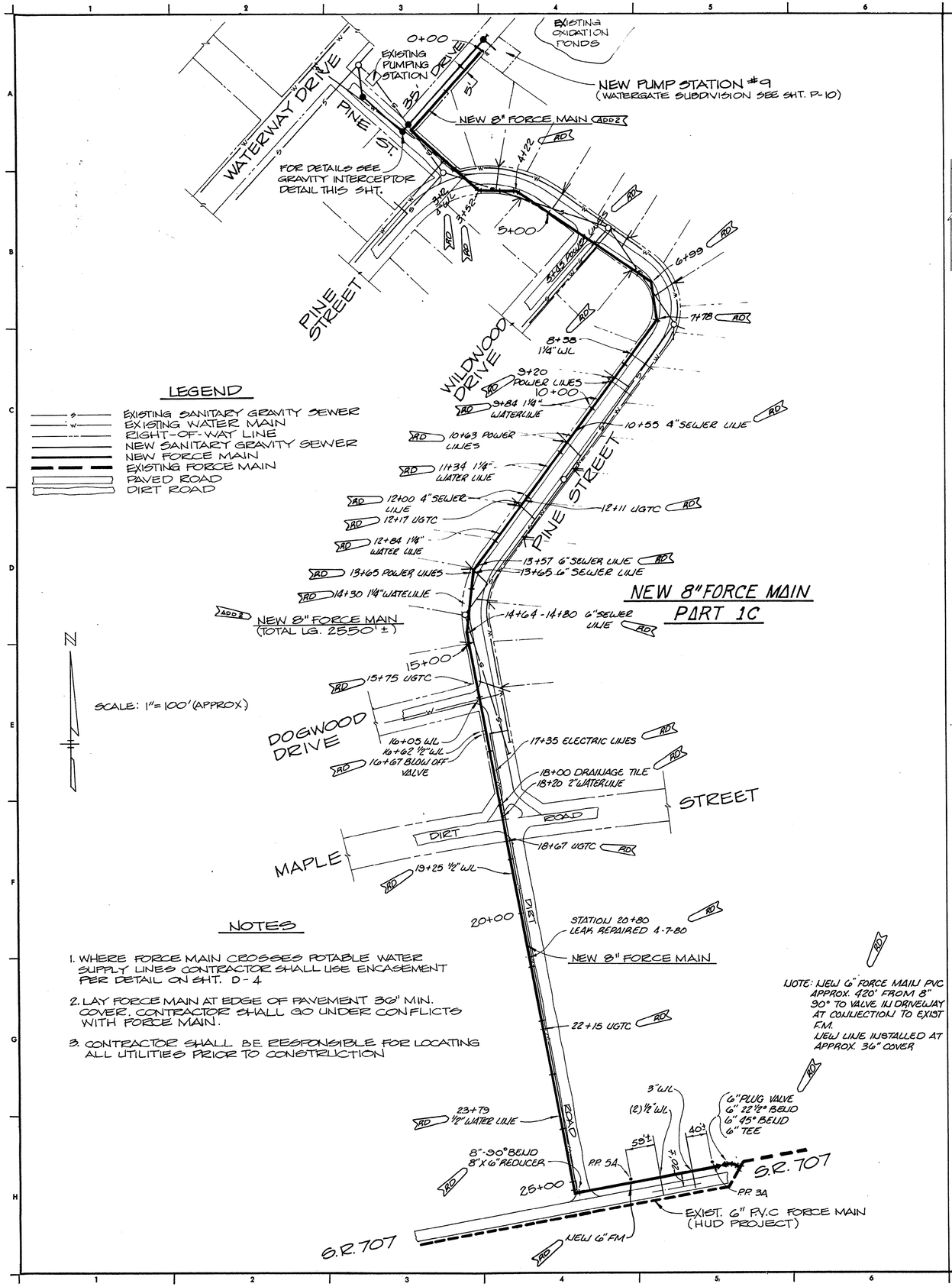
NEW 6" & 10" FORCE MAIN ALONG U.S. HWY. No. 17

SHEET NO. 53

| NO. | DESCRIPTION | DATE |
|---|---|---|

REVISIONS

C 450381-05




## LEGEND

- EXISTING SANITARY GRAVITY SEWER
- EXISTING WATER MAIN
- RIGHT-OF-WAY LINE
- NEW SANITARY GRAVITY SEWER
- NEW FORCE MAIN
- EXISTING FORCE MAIN
- PAVED ROAD
- DIRT ROAD

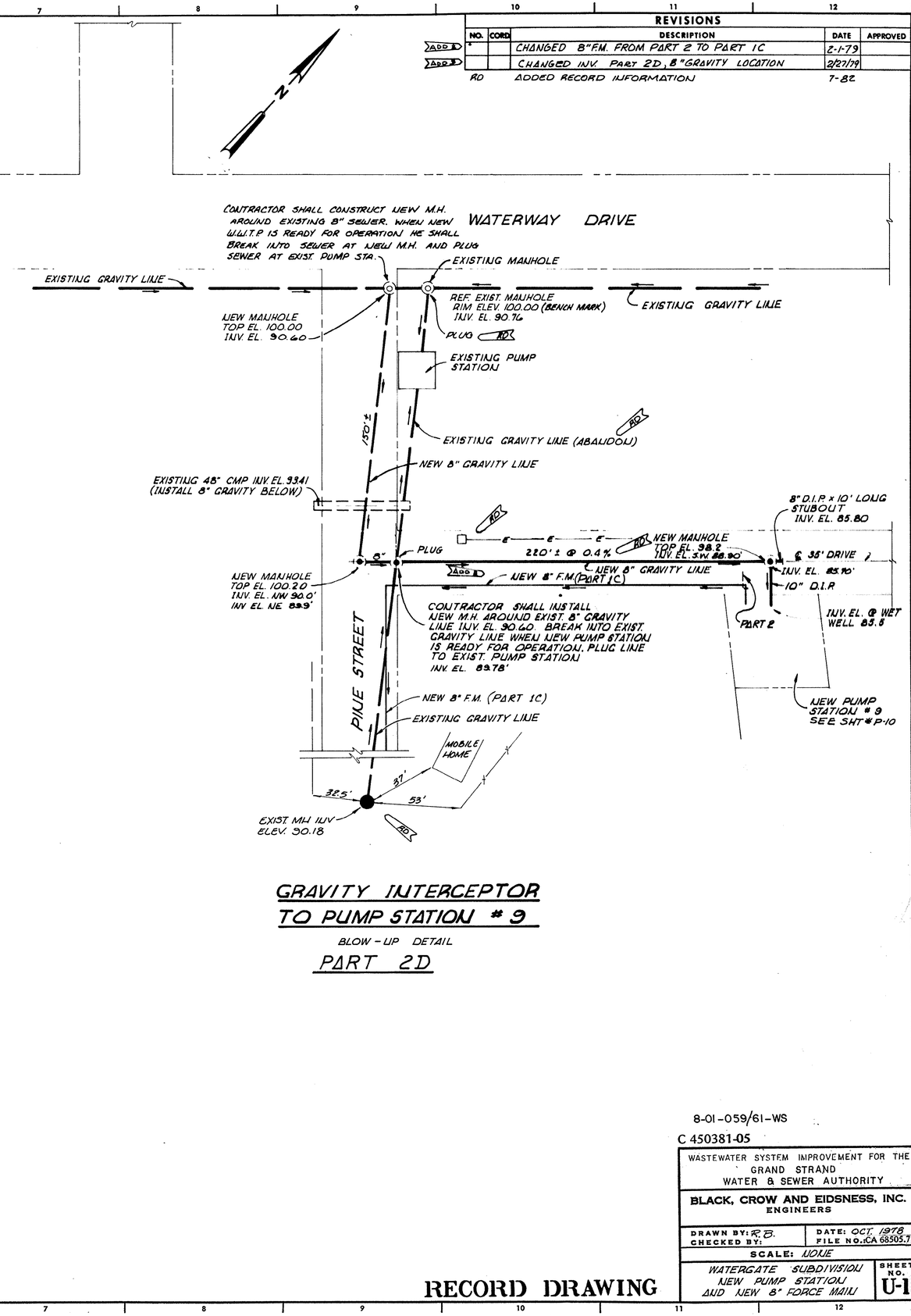
## NEW 8" FORCE MAIN PART 1C

### NOTES

1. WHERE FORCE MAIN CROSSES POTABLE WATER SUPPLY LINES CONTRACTOR SHALL USE ENCASEMENT PER DETAIL ON SHT. D-4.
2. LAY FORCE MAIN AT EDGE OF PAVEMENT 36" MIN. COVER. CONTRACTOR SHALL GO UNDER CONFLICTS WITH FORCE MAIN.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION

NOTE: NEW 6" FORCE MAIN PVC APPROX. 420' FROM 8" 90° TO VALVE IN DRIVEWAY AT CONNECTION TO EXIST F.M. NEW LINE INSTALLED AT APPROX. 36" COVER

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | CORD. | DESCRIPTION | DATE | APPROVED |
| ADD 1 | * | CHANGED 8" F.M. FROM PART 2 TO PART 1C | 2-1-79 | |
| ADD 2 | | CHANGED INV. PART 2D, 8" GRAVITY LOCATION | 2/27/79 | |
| RD | | ADDED RECORD INFORMATION | 7-82 | |




## GRAVITY INTERCEPTOR TO PUMP STATION # 9

BLOW-UP DETAIL

PART 2D

RECORD DRAWING

8-01-059/61-WS

C 450381-05

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC. ENGINEERS

DRAWN BY: R.B. | DATE: OCT. 1978
CHECKED BY: | FILE NO.: CA 68505.71

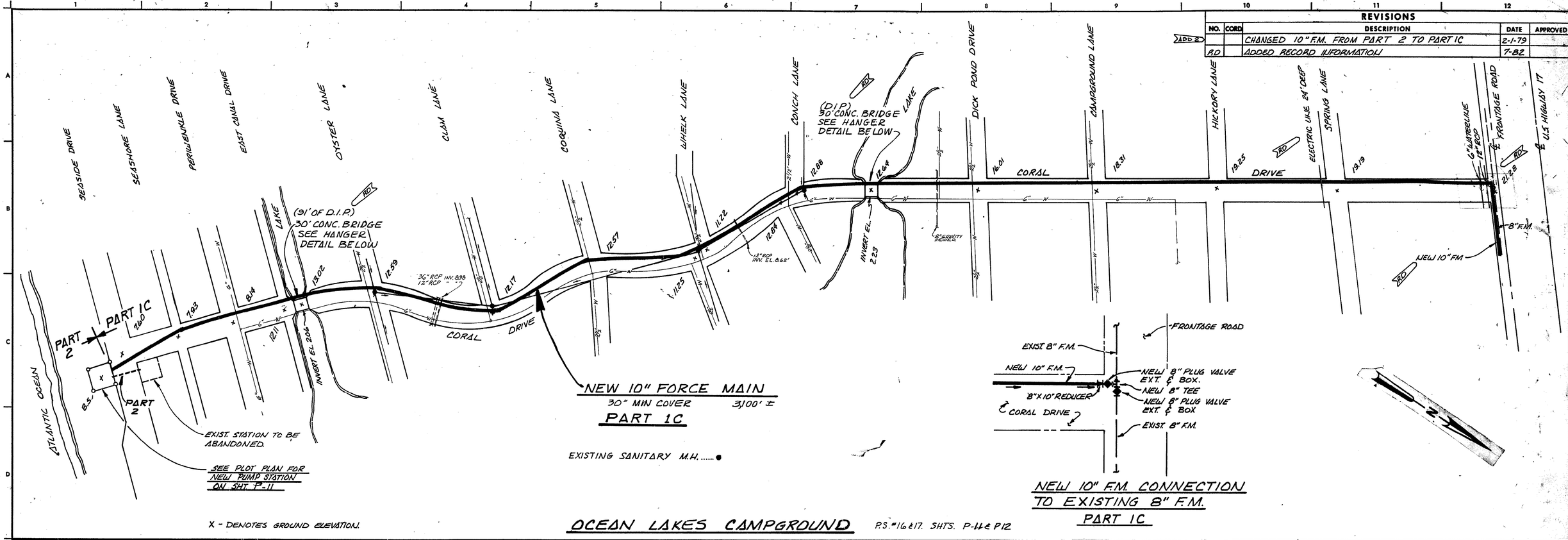
SCALE: NONE

WATERGATE SUBDIVISION NEW PUMP STATION AND NEW 8" FORCE MAIN

SHEET NO. U-1

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | CORD. | DESCRIPTION | DATE | APPROVED |
| | | CHANGED 10" F.M. FROM PART 2 TO PART 1C | 2-1-79 | |
| BD | | ADDED RECORD INFORMATION | 7-82 | |

ADD 2





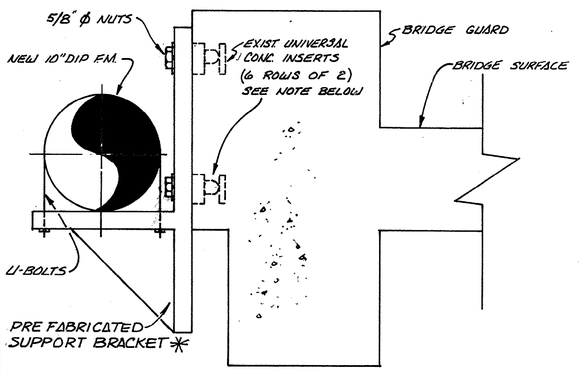


NEW 10" F.M. CONNECTION TO EXISTING 8" F.M.
PART 1C

X - DENOTES GROUND ELEVATION.

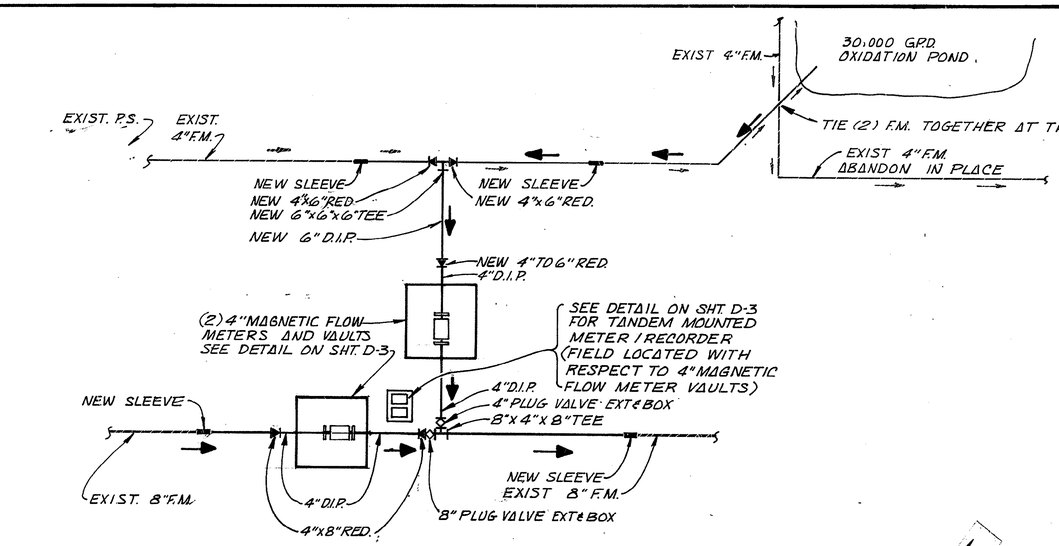
## OCEAN LAKES CAMPGROUND

P.S. #16 & 17. SHTS. P-11 & P12



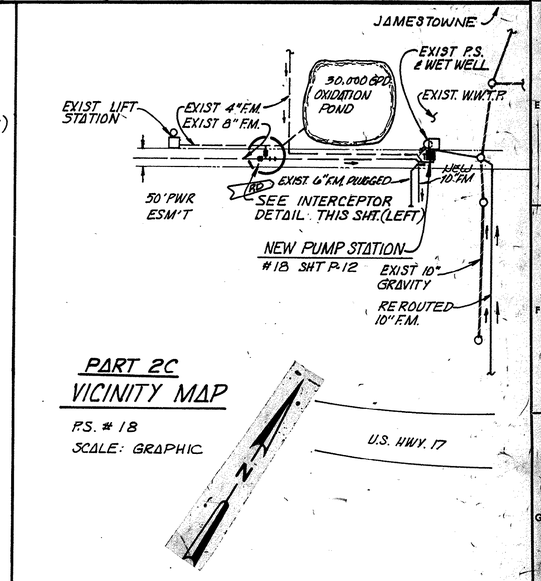

✳ CONTRACTOR SHALL USE EXIST. INSERTS ON BRIDGES TO HANG PIPE. BRACKET SHALL BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION AND USE. (GALVANIZE COATED) IF 3/8 ϕ ANCHOR NUTS PREVAIL CONTRACTOR SHALL INSTALL 2 ADDITIONAL BRACKETS (TOTAL OF 8 PER BRIDGE) SECURE WITH 3/8" EXPANSION TYPE ANCHORS.

PART 1C
PIPE HANGARS
N.T.S.




OLD FLOW DIRECTION
NEW FLOW DIRECTION

PART 2C
INTERCEPTOR DETAIL
FOR P.S. # 18
FIELD LOCATED BY RESIDENT ENGINEER
SEE VICINITY MAP (RIGHT)




PART 2C
VICINITY MAP
P.S. # 18
SCALE: GRAPHIC

8-01-060/61-WS

C 450381-05

WASTEWATER SYSTEM IMPROVEMENT FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

| | |
|---|---|
| DRAWN BY: BW | DATE: OCT. 1978 |
| CHECKED BY: | FILE NO. CA 450381 |
| SCALE: AS NOTED | |

OCEAN LAKES CAMPGROUND
NEW 10" F.M. TO U.S. HWY. 17
TIE @ PUMP STATION #18

SHEET NO. U-2

RECORD DRAWING

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | CORD. | DESCRIPTION | DATE | APPROVED |
| ADD 2 | | ADDED NEW SHTS S1,2,3 & 4 | 2-1-79 | |

GRAND STRAND INTERCEPTOR STATIONS
AND TRUNK LINES
GRAND STRAND SEWER SYSTEM
MYRTLE BEACH, SOUTH CAROLINA

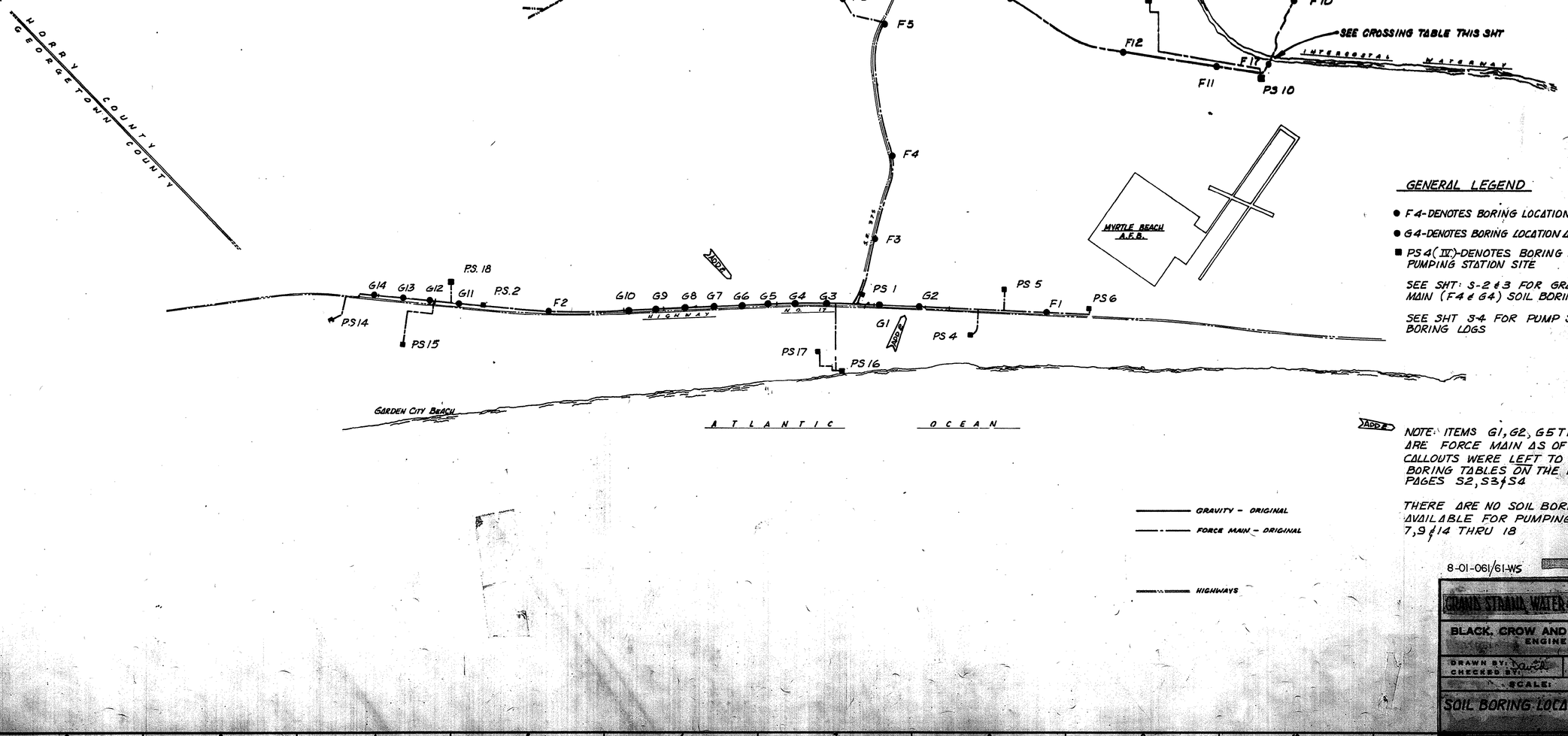
## CROSSING TABLE

THICKNESS OF SOFT BOTTOM DEPOSITS
AT PIPE CROSSING INTRACOASTAL WATERWAY

| Station | Elevation of Water Surface * | Elevation of Water-way Bottom * | Thickness of Soft Bottom Deposits | Elevation of Firm Soils |
|---|---|---|---|---|
| 0+00 (East Bank) | -0.5 | - | - | - |
| 0+25 | -0.5 | -1.5 | 0.5' | -2.0 |
| 0+50 | -0.5 | -6.1 | 1.9' | -8.0 |
| 0+75 | -0.5 | -10.5 | 3.5' | -14.0 |
| 1+00 | -0.5 | -12.5 | 2.0' | -14.5 |
| 1+25 | -0.5 | -14.5 | 1.5' | -16.0 |
| 1+50 | -0.5 | -14.9 | 3.1' | -18.0 |
| 1+75 | -0.5 | -12.6 | 2.9' | -15.5 |
| 2+00 | -0.5 | -4.5 | 0.5' | -5.0 |

* Compared to Mean Sea Level (MSL)

SCALE 1"= 1/2 MILE




### GENERAL LEGEND

- F4-DENOTES BORING LOCATION ALONG FORCE MAIN
- G4-DENOTES BORING LOCATION ALONG GRAVITY MAIN
- PS 4 (IV)-DENOTES BORING LOCATION @ PUMPING STATION SITE

SEE SHT: S-2 & 3 FOR GRAVITY AND FORCE MAIN (F4 & G4) SOIL BORING LOGS

SEE SHT S-4 FOR PUMP STATION SOIL BORING LOGS

GRAVITY - ORIGINAL

FORCE MAIN - ORIGINAL

HIGHWAYS

ADD 2 NOTE: ITEMS G1, G2, G5 THRU G10 ARE FORCE MAIN AS OF JAN 79. CALLOUTS WERE LEFT TO AGREE WITH BORING TABLES ON THE FOLLOWING PAGES S2, S3 & S4

THERE ARE NO SOIL BORINGS AVAILABLE FOR PUMPING STATIONS 7, 9 & 14 THRU 18

8-01-061/61-WS C 450381-05

GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: DWH DATE: JAN 79
CHECKED BY: FILE NO. CASE 61

SCALE:

SOIL BORING LOCATION MAP

SHEET NO. S-1

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | CORD. | DESCRIPTION | DATE | APPROVED |
| ADD 2 | | ADDED NEW SHTS S1,2,3 & 4 | 2-1-79 | |
| | | | | |

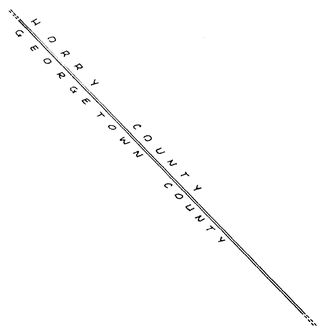
GRAND STRAND INTERCEPTOR STATIONS
AND TRUNK LINES
GRAND STRAND SEWER SYSTEM
MYRTLE BEACH, SOUTH CAROLINA

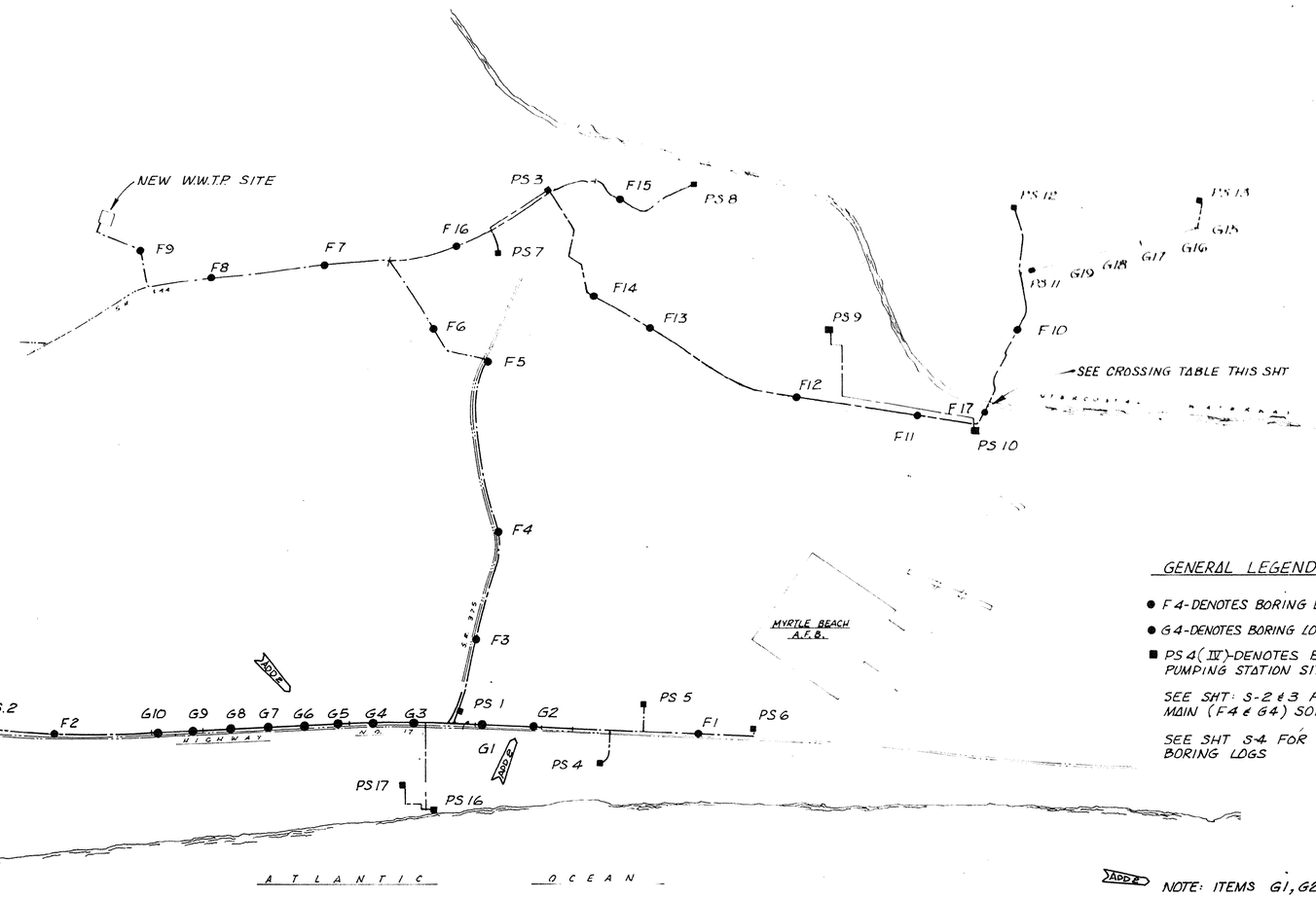
# CROSSING TABLE

THICKNESS OF SOFT BOTTOM DEPOSITS
AT PIPE CROSSING INTRACOASTAL WATERWAY

| Station | Elevation of Water Surface * | Elevation of Water-way Bottom * | Thickness of Soft Bottom Deposits | Elevation of Firm Soils |
|---|---|---|---|---|
| 0+00 (East Bank) | -0.5 | - | - | - |
| 0+25 | -0.5 | -1.5 | 0.5' | -2.0 |
| 0+50 | -0.5 | -6.1 | 1.9' | -8.0 |
| 0+75 | -0.5 | -10.5 | 3.5' | -14.0 |
| 1+00 | -0.5 | -12.5 | 2.0' | -14.5 |
| 1+25 | -0.5 | -14.5 | 1.5' | -16.0 |
| 1+50 | -0.5 | -14.9 | 3.1' | -18.0 |
| 1+75 | -0.5 | -12.6 | 2.9' | -15.5 |
| 2+00 | -0.5 | -4.5 | 0.5' | -5.0 |

* Compared to Mean Sea Level (MSL)




SCALE 1" = 1/2 MILE

## GENERAL LEGEND

- F 4-DENOTES BORING LOCATION ALONG FORCE MAIN
- G 4-DENOTES BORING LOCATION ALONG GRAVITY MAIN
- PS 4 (IV)-DENOTES BORING LOCATION @ PUMPING STATION SITE

SEE SHT: S-2 & 3 FOR GRAVITY AND FORCE MAIN (F4 & G4) SOIL BORING LOGS

SEE SHT S-4 FOR PUMP STATION SOIL BORING LOGS

ADD 2 NOTE: ITEMS G1, G2, G5 THRU G10 ARE FORCE MAIN AS OF JAN 79. CALLOUTS WERE LEFT TO AGREE WITH BORING TABLES ON THE FOLLOWING PAGES S2, S3 & S4

THERE ARE NO SOIL BORINGS AVAILABLE FOR PUMPING STATIONS 7, 9 & 14 THRU 18

GRAVITY - ORIGINAL

FORCE MAIN - ORIGINAL

HIGHWAYS

C 450381-05

08-01-62

GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: David | DATE: JAN 79
CHECKED BY: | FILE NO.: CA 68505.71

SCALE:

SOIL BORING LOCATION MAP | SHEET NO. S-1

51

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | CORD. | DESCRIPTION | DATE | APPROVED |
| | | | | |
| | | | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-1
BORING TERMINATED 7/12/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Stiff Gray Brown Fine Sandy Silt (ML) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-2
BORING TERMINATED 7/6/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Firm Tan Slightly Silty Fine to Medium Sand (SM) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-3
BORING TERMINATED 7/7/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Firm Gray Fine Sandy Clay (CH) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-4
BORING TERMINATED 7/7/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Stiff Brown Fine Sandy Silt (ML) with Rock Fragments | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-5
BORING TERMINATED 7/7/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Soft Brown Gray Fine Sandy Clay (CH) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-6
BORING TERMINATED 7/7/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Loose Gray Brown Silty Fine to Medium Sand (SM) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-7
BORING TERMINATED 7/7/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Firm Brown Fine Sandy Clay (CL) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-8
BORING TERMINATED 7/7/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Firm Gray Fine Sandy Clay (CH) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-9
BORING TERMINATED 7/7/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Loose Gray Silty Fine to Medium Sand (SM) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-10
BORING TERMINATED 7/20/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Loose Tan Gray Clayey Fine Sand (SC) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-11
BORING TERMINATED 7/14/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Soft Brown Gray Fine to Medium Sandy Clay (CL) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-12
BORING TERMINATED 7/14/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Loose Light Gray to Tan Slightly Silty Fine Sand (SM) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-13
BORING TERMINATED 7/14/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Soft Gray Silty Clay (CL) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-14
BORING TERMINATED 7/14/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Firm Orange Gray Clayey Fine Sand (SC) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-15
BORING TERMINATED 7/19/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Firm Gray Organic Silty Clay (CL) | | |
| | Boring Terminated | | |

REMARKS: No Ground Water Encountered
Our Project Number SS-841
BORING NO. F-16
BORING TERMINATED 7/19/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Firm Organic Gray Fine Sandy Clay (CL) | | |
| | Boring Terminated | | |

REMARKS: Ground Water at 10' Time of Boring
Our Project Number SS-841
BORING NO. F-17
BORING TERMINATED 7/13/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 2.5 | Loose Gray Clayey Fine to Medium Sand (SC) with Shell Fragments | | |
| 8.0 | Loose Light Gray Slightly Silty Fine to Medium Sand (SM) with Brown Sandy Clay Pockets | | |
| 12.0 | Loose Gray Silty Fine to Medium Sand (SM) | | |
| 17.0 | Loose Gray Silty Fine to Medium Sand (SM) with Shell Fragments | | |
| 27.0 | Soft Dark Gray Silty Clay (CH) | | |
| 32.0 | Loose Gray Silty Fine to Coarse Sand (SM) | | |
| 36.0 | Very Dense Gray Silty Fine to Medium Sand (SM) | | |
| 40.0 | Firm Dark Gray Clayey Fine Sand (SC) | | |
| | Boring Terminated | | |

REMARKS: Ground Water at 3'
Our Project Number SS-841
BORING NO. G-1
BORING TERMINATED 6/30/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 5.0 | Firm to Loose Dark Brown Very Silty Fine to Medium Sand (SM) with Roots and Sticks | | |
| 8.0 | Firm Tan Gray Clayey Fine to Medium Sand (SC) | | |
| 20.0 | Firm Tan to Dark Gray Slightly Silty Fine to Medium Sand (SM) | | |
| | Boring Terminated | | |

REMARKS: Ground Water at 6'
Our Project Number SS-841
BORING NO. G-2
BORING TERMINATED 6/31/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 3.0 | Firm Black Silty Fine to Medium Sand (SM) with Roots and Pieces of Wood | | |
| 5.5 | Loose Brown Gray Clayey Fine to Medium Sand (SC) | | |
| 15.0 | Firm Tan Slightly Silty Fine to Medium Sand (SM) | | |
| | Boring Terminated | | |

REMARKS: Ground Water at 6' Time of Boring At 3.3' After 24 Hours
Our Project Number SS-841
BORING NO. G-3
BORING TERMINATED 6/30/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 20.0 | Dense and Firm Tan to Dark Brown Silty Fine to Medium Sand (SM) | | |
| | Boring Terminated | | |

REMARKS: Ground Water at 6' Time of Boring At 4' After 24 Hours
Our Project Number SS-841
BORING NO. G-4
BORING TERMINATED 6/30/77

| DEPTH (FEET) | SOIL DESCRIPTION | ELEV. | PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100 |
|---|---|---|---|
| 20.0 | Firm and Loose Dark Brown to Tan Silty Fine to Medium Sand (SM) | | |
| | Boring Terminated | | |

NOMENCLATURE AND SYMBOLS

SYMBOLS

| | |
|---|---|
| ▮ | UNDISTURBED SAMPLE (ud) RECOVERED |
| ▯ | UNDISTURBED SAMPLE (ud) NOT RECOVERED |
| ● | STANDARD PENETRATION RESISTANCE (ASTM D1586-67) |
| ■ | PENETRATION RESISTANCE OBTAINED USING THE HORIZONTAL BOREHOLE PENETROMETER. THIS VALUE IS APPROXIMATELY THE SAME AS THE STANDARD PENETRATION RESISTANCE |
| 100/5" | NUMBER OF BLOWS (100) TO DRIVE THE SPOON A NUMBER OF INCHES(5) |
| AX,BX,NX | CORE BARREL SIZES WHICH OBTAIN CORES 1-1/8,1-5/8 and 2-1/8 INCHES IN DIAMETER, RESPECTIVELY |
| 65% | PERCENTAGE OF ROCK CORE RECOVERED |
| RQD | ROCK QUALITY DESIGNATION=% OF CORE SEGMENTS 4 OR MORE INCHES LONG |
| ▼ | WATER TABLE AT LEAST 24 HOURS AFTER DRILLING |
| ▽ | WATER TABLE ONE HOUR OR LESS AFTER DRILLING |
| ▲ | LOSS OF DRILLING WATER |
| A | ATTERBERG LIMITS TEST PERFORMED |
| C | CONSOLIDATION TEST PERFORMED |
| GS | GRAIN SIZE TEST PERFORMED |
| T | TRIAXIAL SHEAR TEST PERFORMED |
| P | PROCTOR COMPACTION TEST PERFORMED |
| V | FIELD VANE SHEAR TEST PERFORMED |
| MC | NATURAL MOISTURE CONTENT (PERCENT) |
| BS | BOREHOLE SHEAR TEST PERFORMED |
| SD | SETTLEMENT DEVICE TEST PERFORMED |

PENETRATION RESISTANCE RESULTS

| | NO. OF BLOWS, N | APPROXIMATE RELATIVE DENSITY |
|---|---|---|
| SANDS | 0 - 4 | VERY LOOSE |
| | 5 - 10 | LOOSE |
| | 11 - 20 | FIRM |
| | 21 - 30 | VERY FIRM |
| | 31 - 50 | DENSE |
| | OVER 50 | VERY DENSE |
| | | APPROXIMATE CONSISTENCY |
| SILTS AND CLAYS | 0 - 1 | VERY SOFT |
| | 2 - 4 | SOFT |
| | 5 - 8 | FIRM |
| | 9 - 15 | STIFF |
| | 16 - 30 | VERY STIFF |
| | 31 - 50 | HARD |
| | OVER 50 | VERY HARD |

DRILLING PROCEDURES

SOIL SAMPLING AND STANDARD PENETRATION TESTING PERFORMED IN ACCORDANCE WITH ASTM D 1586-67. THE STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS OF A 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D., 1.4 INCH I.D. SPLIT SPOON SAMPLER ONE FOOT. CORE DRILLING IN ACCORDANCE WITH ASTM DESIGNATION D 2113-62T. THE UNDISTURBED SAMPLING PROCEDURE IS DESCRIBED BY ASTM SPECIFICATION D 1587-67.

08-01-63

C 450381-05

GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: B.W. | DATE: JAN. 1979
CHECKED BY: | FILE NO. CA 68505.71

SCALE: NONE

SOIL BORING LOGS

SHEET NO. S-2

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | CORD. | DESCRIPTION | DATE | APPROVED |
| | | | | |
| | | | | |
| | | | | |

REMARKS: Ground Water at 6' Time of Boring At 4.8' After 24 Hours

BORING NO. G-5

BORING TERMINATED 6/30/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Dark Brown Silty Fine to Medium Sand (SM) |
| 5.5 | Loose Tan Silty Fine to Medium Sand (SM) with Trace of Clay |
| 8.0 | Peat |
| 12.0 | Firm Dark Brown Silty Fine to Medium Sand (SM) |
| 15.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 7.5' Time of Boring At 4.3' After 24 Hours

BORING NO. G-6

BORING TERMINATED 6/30/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm to Dense Brown Silty Fine to Medium Sand (SM) with Wood Pieces at 10' |
| 20.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 4'

BORING NO. G-7

BORING TERMINATED 7/6/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Dense to Firm Brown to Tan Silty Fine to Medium Sand (SM) |
| 5.5 | Loose Tan Gray Clayey Fine to Medium Sand (SC) with Lens of Clay (CH) at 7' to 7.5' |
| 8.0 | Very Loose Dark Blue Clayey Fine to Medium Sand (SC) |
| 11.0 | Loose Dark Brown Silty Fine to Medium Sand (SM) with Pieces of Wood |
| 15.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 4.5'

BORING NO. G-8

BORING TERMINATED 7/6/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Brown Silty Fine to Medium Sand (SM) |
| 5.5 | Very Loose Tan Slightly Silty Fine to Medium Sand (SM) |
| 8.0 | Loose Tan Gray Silty Fine to Medium Sand (SM) with Thin Clay Lenses |
| 10.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 4'

BORING NO. G-9

BORING TERMINATED 7/6/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Dense to Firm Dark Brown Silty Fine to Medium Sand (SM) |
| 5.5 | Firm Greenish Gray Clay (CH) |
| 7.5 | Firm Tan Slightly Silty Fine to Medium Sand (SM) |
| 10.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 6.5'

BORING NO. G-11

BORING TERMINATED 7/6/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Loose Brown Slightly Silty Fine to Medium Sand (SM) |
| 3.0 | Firm Red Brown Very Silty Fine to Medium Sand (SM) with Trace of Clay |
| 8.0 | Loose to Dense Tan and Brown Slightly Silty Fine to Medium Sand (SM) |
| 20.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 3'

BORING NO. G-12

BORING TERMINATED 7/6/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Gray Clayey Fine to Medium Sand (SC) with an Occasional Thin Clay Lens |
| 7.0 | Firm to Loose Tan Gray Slightly Silty Fine to Medium Sand (SM) with an Occasional Thin Clay Lens |
| 15.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 6'

BORING NO. G-13

BORING TERMINATED 7/6/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Brown Very Silty Fine to Medium Sand (SM) |
| 5.5 | Firm Tan Gray Silty Fine to Medium Sand (SM) with Trace of Clay |
| 15.0 | Firm Tan Silty Fine to Medium Sand (SM) |
| | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: No Ground Water Encountered

BORING NO. G-14

BORING TERMINATED 7/7/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Tan and Brown Silty Fine to Medium Sand (SM) |
| 10.0 | |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: No Ground Water Encountered

BORING NO. G-15

BORING TERMINATED 7/21/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Dark Gray Silty Fine Sand (SM) |
| 3.0 | Soft Gray Brown Silty Clay (CL) with Trace of Fine Sand |
| 5.0 | Firm Gray Slightly Silty Fine to Medium Sand (SM) |
| 10.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 14' Time of Boring

BORING NO. G-16

BORING TERMINATED 7/21/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Loose Gray Brown Silty Clay (CL) with Trace of Fine Sand |
| 3.0 | Firm Gray Brown Fine Sandy Clay (CH) |
| 5.5 | Loose Light Gray Slightly Silty Fine to Medium Sand (SM) |
| 11.0 | Very Loose Dark Gray Silty Fine to Medium Sand (SM) |
| 15.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 14' Time of Boring

BORING NO. G-17

BORING TERMINATED 7/21/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Brown Gray Silty Clay (CL) |
| 3.0 | Firm Dark Gray Fine Sandy Clay (CH) |
| 5.5 | Loose Gray Silty Fine to Medium Sand (SM) |
| 8.0 | Loose Gray Clayey Fine to Medium Sand (SC) |
| 11.0 | Very Soft Dark Gray Silty Clay (CH) with Shell Fragments |
| 15.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 14' Time of Boring

BORING NO. G-18

BORING TERMINATED 7/21/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Gray Orange Silty Clay (CL) with Trace of Medium to Coarse Sand |
| 3.0 | Loose Light Gray Clayey Fine Sand (SC) |
| 5.5 | Loose Gray Silty Fine to Medium Sand (SM) with 2-inch Clay Seam at 7' |
| 8.0 | Very Loose Dark Gray Silty Fine to Medium Sand (SM) |
| 20.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

REMARKS: Ground Water at 15' Time of Boring

BORING NO. G-19

BORING TERMINATED 7/21/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Gray Brown Silty Clay (CL) |
| 5.5 | Loose Gray Clayey Fine Sand (SC) |
| 8.0 | Soft Gray Brown Silty Clay (CL) with Trace of Fine Sand |
| 11.0 | Very Loose Dark Gray Silty Fine to Medium Sand (SM) |
| 15.5 | Loose Gray Silty Fine to Medium Sand (SM) with Shell Fragments |
| 20.0 | Boring Terminated |

ELEV.

PENETRATION RESISTANCE (BLOWS PER FOOT) 0 10 20 40 60 80 100

## NOMENCLATURE AND SYMBOLS

### SYMBOLS

| | |
|---|---|
| ■ | UNDISTURBED SAMPLE (UD) RECOVERED |
| ▯ | UNDISTURBED SAMPLE (UD) NOT RECOVERED |
| ● | STANDARD PENETRATION RESISTANCE (ASTM D1586-67) |
| ■ | PENETRATION RESISTANCE OBTAINED USING THE HORIZONTAL BOREHOLE PENETROMETER. THIS VALUE IS APPROXIMATELY THE SAME AS THE STANDARD PENETRATION RESISTANCE. |
| 100/2" | NUMBER OF BLOWS (100) TO DRIVE THE SPOON A NUMBER OF INCHES (2) |
| AX,BX,NX | CORE BARREL SIZES WHICH OBTAIN CORES 1-1/8, 1-5/8 and 2-1/8 INCHES IN DIAMETER, RESPECTIVELY |
| 65% | PERCENTAGE OF ROCK CORE RECOVERED |
| RQD | ROCK QUALITY DESIGNATION OF CORE SEGMENTS 4 OR MORE INCHES LONG |
| ▽ | WATER TABLE AT LEAST 24 HOURS AFTER DRILLING |
| ▽ | WATER TABLE ONE HOUR OR LESS AFTER DRILLING |
| ▲ | LOSS OF DRILLING WATER |
| A | ATTERBERG LIMITS TEST PERFORMED |
| C | CONSOLIDATION TEST PERFORMED |
| GS | GRAIN SIZE TEST PERFORMED |
| T | TRIAXIAL SHEAR TEST PERFORMED |
| P | PROCTOR COMPACTION TEST PERFORMED |
| V | FIELD VANE SHEAR TEST PERFORMED |
| 18 | NATURAL MOISTURE CONTENT (PERCENT) |
| BS | BOREHOLE SHEAR TEST PERFORMED |
| SD | SETTLEMENT DEVICE TEST PERFORMED |

### PENETRATION RESISTANCE RESULTS

| | NO. OF BLOWS, N | APPROXIMATE RELATIVE DENSITY |
|---|---|---|
| SANDS | 0 - 4 | VERY LOOSE |
| | 5 - 10 | LOOSE |
| | 11 - 20 | FIRM |
| | 21 - 30 | VERY FIRM |
| | 31 - 50 | DENSE |
| | OVER 50 | VERY DENSE |
| | | APPROXIMATE CONSISTENCY |
| SILTS AND CLAYS | 0 - 1 | VERY SOFT |
| | 2 - 4 | SOFT |
| | 5 - 8 | FIRM |
| | 9 - 15 | STIFF |
| | 16 - 30 | VERY STIFF |
| | 31 - 50 | HARD |
| | OVER 50 | VERY HARD |

### DRILLING PROCEDURES

SOIL SAMPLING AND STANDARD PENETRATION TESTING PERFORMED IN ACCORDANCE WITH ASTM D 1586-67. THE STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS OF A 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D., 1.4 INCH I.D. SPLIT SPOON SAMPLER ONE FOOT. CORE DRILLING IN ACCORDANCE WITH ASTM DESIGNATION D 2113-62T. THE UNDISTURBED SAMPLING PROCEDURE IS DESCRIBED BY ASTM SPECIFICATION D 1587-67.

C 450381-05

08-10-064

GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: B.W. DATE: MAY 1979
CHECKED BY: FILE NO. CA 68505.71

SCALE: NONE

SOIL BORING LOGS

SHEET NO. S-3

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | CORD. | DESCRIPTION | DATE | APPROVED |
| | | | | |
| | | | | |

REMARKS: Ground Water at 5' Time of Boring — BORING NO. PS-I — BORING TERMINATED 6/30/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| 1.0 | Topsoil with Roots |
| 3.0 | Loose Tan Slightly Silty Fine to Medium Sand (SM) |
| 5.5 | Firm Gray Slightly Silty Clay (CH) |
| 8.0 | Firm Tan Gray Fine Sandy Clay (CH) |
| 12.0 | Firm Tan Slightly Silty Fine to Medium Sand (SM) |
| | Firm Gray Slightly Silty Fine to Medium Sand (SM) with Shells at 19.5' and 1-inch Thick Clay Seam at 20' |
| 38.0 | Boring Terminated |

REMARKS: Ground Water at 5' Time of Boring — BORING NO. PS-II — BORING TERMINATED 7/7/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Loose to Firm Tan and Brown Slightly Silty Fine to Medium Sand (SM) |
| 8.0 | Very Soft Dark Blue Gray Silty Clay (CL) with Fine Sand and Shells |
| 12.0 | Firm Dark Brown Silty Fine to Medium Sand (SM) |
| 25.0 | Boring Terminated |

REMARKS: Ground Water at 14' Time of Boring — BORING NO. PS-III — BORING TERMINATED 7/15/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Loose Gray Clayey Fine Sand (SC) |
| 3.0 | Firm Gray Brown Fine Sandy Clay (CL) |
| 5.0 | Firm Gray Silty Fine Sand (SM) |
| 8.0 | Loose Organic Silty Fine Sand (SM) |
| 10.0 | Firm Light Gray to Gray Silty Fine Sand (SM) |
| 21.0 | Soft Dark Gray Silty Clay (CH) |
| 25.0 | Boring Terminated |

REMARKS: Ground Water at 8.5' Time of Boring — BORING NO. PS-IV — BORING TERMINATED 7/12/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Red Brown Silty Fine to Medium Sand (SM) |
| 6.0 | Firm to Loose Organic Brown Silty Fine to Medium Sand (SM) |
| 25.0 | Boring Terminated |

REMARKS: Ground Water at 8.5' Time of Boring at 4.5' After 24 Hours — BORING NO. PS V — BORING TERMINATED 7/12/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Dark Brown Silty Clay (CH) with Organic Matter |
| 3.0 | Firm Tan Silty Clay (CL) with Rock Fragments |
| 5.5 | Firm to Loose Dark Brown Silty Fine to Medium Sand (SM) |
| 22.0 | Very Loose Gray Clayey Fine to Coarse Sand (SC) with Rock Fragments |
| 25.0 | Boring Terminated |

REMARKS: Ground Water at 12.5' Time of Boring; At 8.5' After 24 Hours — BORING NO. PS VI — BORING TERMINATED 7/12/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| 2.0 | Loose Tan Slightly Silty Fine Sand (SM) |
| 5.0 | Loose Red Brown Silty Fine Sand (SM) |
| 10.0 | Firm Light Gray Clayey Fine Sand (SC) |
| | Loose Light Gray Slightly Silty Fine to Medium Sand (SM) |
| 25.0 | Boring Terminated |

REMARKS: Ground Water at 9' Time of Boring — BORING NO. PS VIII — BORING TERMINATED 7/13/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Tan Slightly Silty Fine Sand (SM) |
| 5.5 | Loose Tan Slightly Silty Fine to Medium Sand (SM) |
| 8.0 | Very Loose Gray Silty Fine Sand (SM) |
| 12.0 | Loose Dark Brown Clayey Fine Sand (SC) |
| 17.0 | Dense to Very Dense Gray Silty Fine to Medium Sand (SM) |
| 25.0 | Boring Terminated |

REMARKS: Ground Water at 13' Time of Boring — BORING NO. PS X — BORING TERMINATED 7/14/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Very Stiff to Firm Tan Gray Silty Clay (CH) |
| 9.5 | Loose to Firm Gray Slightly Silty Fine to Medium Sand (SM) |
| 30.0 | Boring Terminated |

REMARKS: Ground Water at 9' Time of Boring — BORING NO. PS XI — BORING TERMINATED 7/20/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Soft Gray Brown Silty Clay (CL) |
| 3.0 | Firm Gray Brown Clayey Fine Sand (SC) |
| 5.0 | Very Loose Gray Brown Silty Fine Sand (SM) |
| 7.0 | Very Loose Gray Clayey Fine Sand (SC) with Shell Fragments |
| 11.0 | Soft Dark Gray Silty Clay (CH) |
| 15.0 | Very Loose Gray Calcareous Silty Fine to Medium Sand (SM) with Cemented Shell Fragments |
| 21.0 | Loose Gray Silty Fine Sand (SM) with Shell Fragments |
| 26.0 | Firm Gray Silty Fine Sand (SM) |
| 30.0 | Boring Terminated |

REMARKS: Ground Water at 8' Time of Boring At 3' After 24 Hours — BORING NO. PS XII — BORING TERMINATED 7/13/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm Tan Silty Fine Sand (SM) with Organic Matter |
| 5.5 | Loose Brown Silty Fine to Medium Sand (SM) |
| 13.0 | Firm Gray Clayey Fine to Medium Sand (SC) |
| 16.0 | Firm Brown Gray to Tan Silty Fine to Medium Sand (SM) |
| 25.0 | Boring Terminated |

REMARKS: Ground Water at 13' Time of Boring At 3' After 24 Hours — BORING NO. PS XIII — BORING TERMINATED 7/13/77

Our Project Number SS-841

| DEPTH (FEET) | SOIL DESCRIPTION |
|---|---|
| | Firm to Soft Gray Silty Clay (CH) with Trace of Fine Sand |
| 12.0 | Very Soft Dark Gray Silty Clay (CH) with Shell Fragments |
| 17.0 | Firm Gray Clayey Fine Sand (SC) |
| 21.0 | Dense Gray Silty Fine to Medium Sand (SM) |
| 25.0 | Boring Terminated |

## NOMENCLATURE AND SYMBOLS

SYMBOLS

| | |
|---|---|
| ▮ | UNDISTURBED SAMPLE (UD) RECOVERED |
| ▯ | UNDISTURBED SAMPLE (UD) NOT RECOVERED |
| ● | STANDARD PENETRATION RESISTANCE (ASTM D1586-67) |
| ■ | PENETRATION RESISTANCE OBTAINED USING THE HORIZONTAL BOREHOLE PENETROMETER. THIS VALUE IS APPROXIMATELY THE SAME AS THE STANDARD PENETRATION RESISTANCE |
| 100/2" | NUMBER OF BLOWS (100) TO DRIVE THE SPOON A NUMBER OF INCHES(2) |
| AX,BX,NX | CORE BARREL SIZES WHICH OBTAIN CORES 1-1/8,1-5/8 and 2-1/8 INCHES IN DIAMETER, RESPECTIVELY |
| 65% | PERCENTAGE OF ROCK CORE RECOVERED |
| RQD | ROCK QUALITY DESIGNATION-% OF CORE SEGMENTS 4 OR MORE INCHES LONG |
| ▽ | WATER TABLE AT LEAST 24 HOURS AFTER DRILLING |
| ▽ | WATER TABLE ONE HOUR OR LESS AFTER DRILLING |
| ▲ | LOSS OF DRILLING WATER |
| A | ATTERBERG LIMITS TEST PERFORMED |
| C | CONSOLIDATION TEST PERFORMED |
| GS | GRAIN SIZE TEST PERFORMED |
| T | TRIAXIAL SHEAR TEST PERFORMED |
| P | PROCTOR COMPACTION TEST PERFORMED |
| V | FIELD VANE SHEAR TEST PERFORMED |
| 18 | NATURAL MOISTURE CONTENT (PERCENT) |
| BS | BOREHOLE SHEAR TEST PERFORMED |
| SD | SETTLEMENT DEVICE TEST PERFORMED |

PENETRATION RESISTANCE RESULTS

| | NO.OF BLOWS,N | APPROXIMATE RELATIVE DENSITY |
|---|---|---|
| SANDS | 0 - 4 | VERY LOOSE |
| | 5 - 10 | LOOSE |
| | 11 - 20 | FIRM |
| | 21 - 30 | VERY FIRM |
| | 31 - 50 | DENSE |
| | OVER 50 | VERY DENSE |
| | | APPROXIMATE CONSISTENCY |
| SILTS AND CLAYS | 0 - 1 | VERY SOFT |
| | 2 - 4 | SOFT |
| | 5 - 8 | FIRM |
| | 9 - 15 | STIFF |
| | 16 - 30 | VERY STIFF |
| | 31 - 50 | HARD |
| | OVER 50 | VERY HARD |

DRILLING PROCEDURES

SOIL SAMPLING AND STANDARD PENETRATION TESTING PERFORMED IN ACCORDANCE WITH ASTM D 1586-67. THE STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS OF A 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D., 1.4 INCH I.D. SPLIT SPOON SAMPLER ONE FOOT. CORE DRILLING IN ACCORDANCE WITH ASTM DESIGNATION D 2113-62T. THE UNDISTURBED SAMPLING PROCEDURE IS DESCRIBED BY ASTM SPECIFICATION D 1587-67.

C 450381-05

GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: BW — DATE: JAN 1979
CHECKED BY: — FILE NO.: CA 68505.70

SCALE: NONE

SOIL BORING LOGS — SHEET NO. S-4

08-10-065

BASED ON 100 P.S.I. WORKING PRESS. x 1.50 S. FACTOR

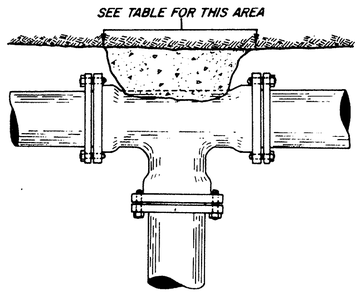
**BEARING AREA TABLE IN SQUARE FEET**

| PIPE SIZE | TEE OR PLUG | 90° BEND | 45° BEND | 22½° BEND |
|---|---|---|---|---|
| 4" | 1.0 | 1.5 | 1.0 | 1.0 |
| 6" | 2.5 | 3.0 | 2.0 | 1.0 |
| 8" | 4.0 | 5.5 | 3.0 | 2.0 |
| 10" | 6.0 | 8.0 | 4.5 | 3.0 |
| 12" | 8.5 | 11.5 | 6.5 | 4.0 |
| 14" | 11.0 | 16.0 | 9.0 | 5.0 |
| 16" | 14.0 | 20.0 | 11.0 | 6.0 |
| 18" | 17.0 | 24.0 | 13.0 | 7.0 |
| 20" | 22.0 | PLANS | 17.0 | 8.0 |
| 24" | PLANS | PLANS | 24.0 | 12.0 |

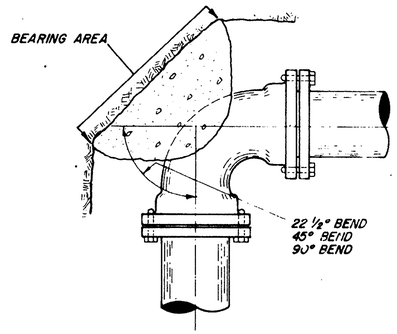
REACTION BLOCKING FOR PIPES 30" & LARGER AND OTHERS NOTED ABOVE, SHALL BE SPECIFIED IN THE PLANS.

THE FIGURES IN THIS TABLE ARE BASED ON 2,500 LBS. PER SQUARE FOOT SOIL BEARING AGAINST UNDISTURBED TRENCH WALL AND ARE TO REPRESENT THE MINIMUM VERTICAL PROJECTED AREA OF THE REACTION BLOCK IN A PLANE PERPENDICULAR TO A LINE BISECTING THE INCLUDED ANGLE OF THE FITTING.

UNLESS OTHERWISE STATED IN THE PLANS, ALL THRUST BLOCKS FOR PIPES 4" & LARGER SHALL BE POURED. THE USE OF RESTRAINED JOINTS DOES NOT ALLEVIATE THE NEED FOR REACTION BLOCKING UNLESS SO STATED IN THE PLANS.

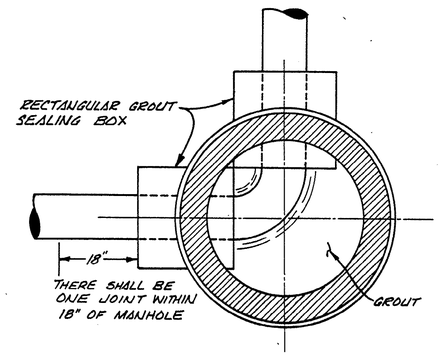


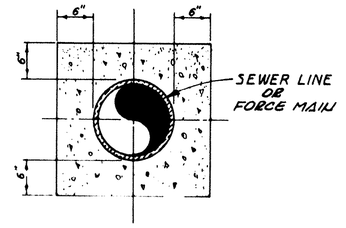

TYPICAL REACTION BLOCKING - TEE



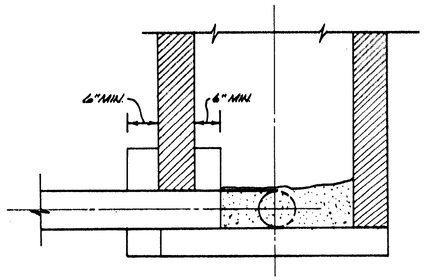

TYPICAL REACTION BLOCKING - BENDS

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | CORD | DESCRIPTION | DATE | APPROVED |
| 10-1 | | GENERAL CHANGES | | |
| | | | | |



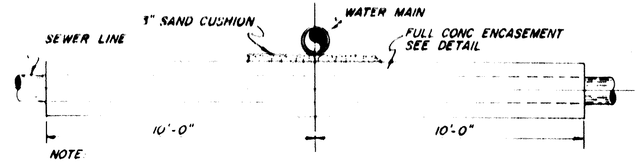




CONCRETE ENCASEMENT DETAIL



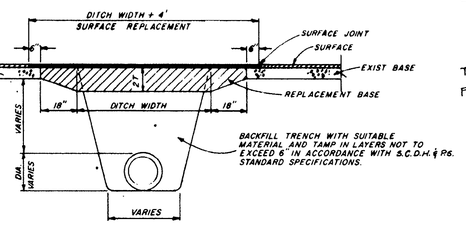

MANHOLE GROUTING DETAIL

18" AND LARGER SEWERS



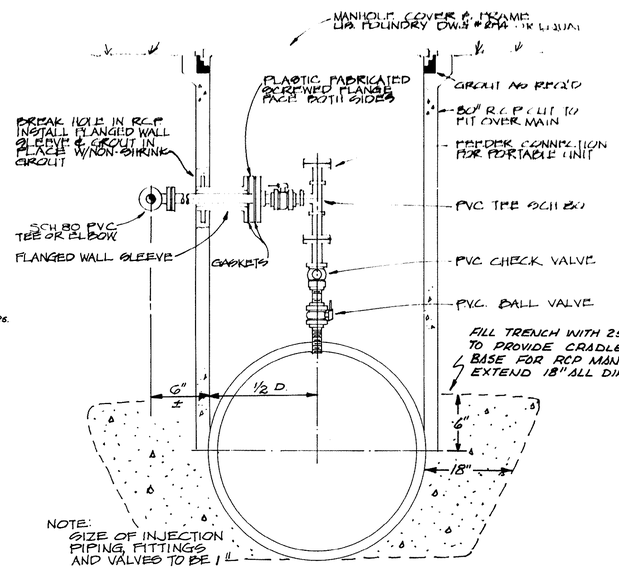

NOTE
WATER MAIN SHALL BE LOCATED ABOVE OR BELOW ENCASEMENT AS SHOWN ON PLANS OR AS DIRECTED BY ENGINEER IN FIELD.
USE ENCASEMENT WHERE VERT CLEARANCE BETWEEN SEWER & WATER MAIN IS LESS THAN 18"

NOTES:
REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE.
BASE MATERIAL SHALL BE PLACED IN TWO OR THREE LAYERS AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO MAXIMUM DENSITY
ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
SURFACED TREATED PAVEMENT JOINTS SHALL BE CAPPED AND FEATHERED.
SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.




REPLACEMENT OF FLEXIBLE PAVEMENT

FOR TRANSVERSE CUTS OF PAVED SURFACES.




FORCE MAIN TAPPING DETAIL
FOR $H_2O_2$ INJECTION
N.T.S.
(PART 1 ONLY)

TYPICAL (3) PLACES SR # 544
ALONG PIPELINE @ STA. 65+72
STA. 89+84
STA. 113+96




TYPICAL CLEAN-OUT




REPLACE SURFACE WITH TYPE I OR TYPE II ASPHALTIC CONCRETE PAVEMENT AND EXTEND MINIMUM 1"(ONE) INCH THICK OVERLAY 10 FEET BEYOND EDGE OF TRENCH BOTH DIRECTIONS.

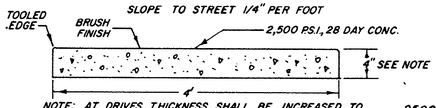
THIS DETAIL APPLIES TO ALL STATE ROAD OPEN CUTS EXCEPT U.S. HIGHWAY ACCESS ROADS AND BURCALE ROAD S.R. 992

REPLACEMENT OF FLEXIBLE PAVEMENT

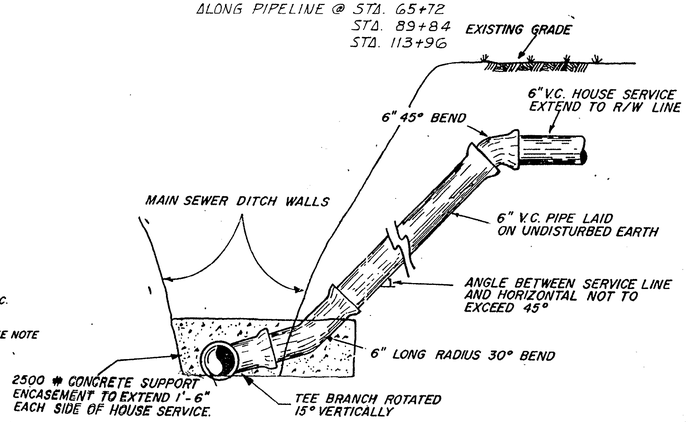
WHERE PERMISSION HAS BEEN GRANTED TO OPEN-CUT STATE ROAD.

**LEGEND**

| TYPE OF UTILITY | |
|---|---|
| F.M. | FORCE MAIN |
| G.M. | GAS MAIN |
| W.M. | WATER MAIN |
| U.G.T.C. | UNDERGROUND TELEPHONE CABLE |
| U.G.T.V.C. | UNDERGROUND TELEVISION CABLE |
| U.G.P.C. | UNDERGROUND POWER CABLE |
| **PIPE MATERIAL** | |
| A.C. | ASBESTOS CEMENT |
| C.I. | CAST IRON |
| D.I. | DUCTILE IRON |
| G.I | GALVANIZED IRON |
| C.M.P. | CORRUGATED METAL PIPE |
| PVC. | POLYVINYL CHLORIDE (PLASTIC) |
| R.C.P. | REINFORCED CONCRETE PIPE |
| STL. | STEEL |
| V.C.P. | VITRIFIED CLAY PIPE |
| **ROAD SURFACES** | |
| ASPH. | ASPHALT |
| BIT. | BITUMINOUS |
| CONC. | CONCRETE |
| PVT. | PAVEMENT |

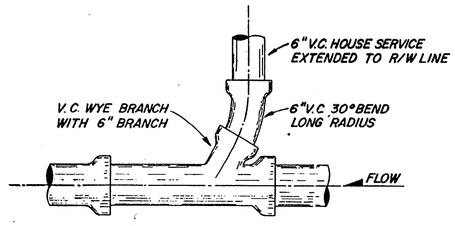



SIDEWALK REPLACEMENT DETAIL




ALTERNATE HOUSE SERVICE CONNECTION

(TO BE USED WHERE MAIN SEWER IS DEEPER THAN 8 FEET)




HOUSE SERVICE CONNECTIONS

08-01-066

WASTEWATER SYSTEM IMPROVEMENTS FOR THE
GRAND STRAND
WATER & SEWER AUTHORITY

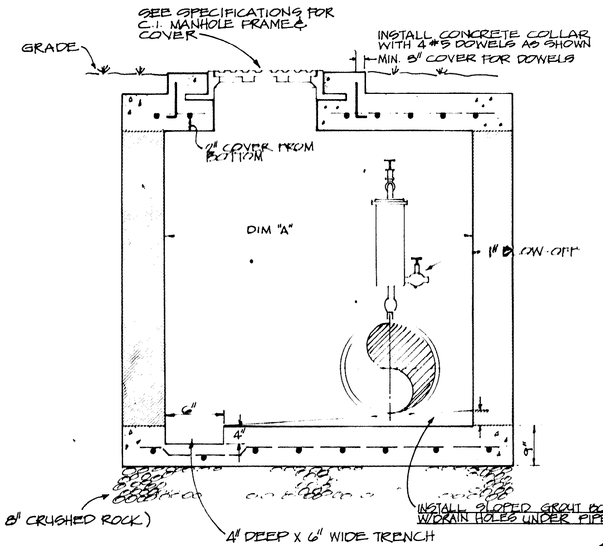
BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: David | DATE: MAY, 1978
CHECKED BY: [illegible] | FILE NO. CA68505.71
SCALE: N.T.S.

TYPICAL DETAILS | SHEET NO. T-1

C 450381-05

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| NO. | CORD | DESCRIPTION | DATE | APPROVED |
| ADD 4 | | CHANGED PRECAST MANHOLE | 2/28/79 | |
| ADD 1 | | ADDED NOTES TO MANHOLE DETAILS | | |




TYPICAL ENCLOSURE AND AIR RELEASE
N.T.S.
VERTICAL SECTION
(PART 1 ONLY)

2" VAL-MATIC VM-48 OR 2" APCO 400 AIR RELEASE VALVE, WITH MIN. 7/32" DIA. ORIFICE CAPABLE OF RELEASING A MIN. OF 45 CU. FT. PER MIN. AT 100 PSI, AND 25 CU. FT. PER MIN. AT 50 PSI. OR APPROVED EQUAL.

VALVE SHALL BE ESPECIALLY MODIFIED SO THAT OVERALL HEIGHT WITH ACCESSORIES SHALL NOT EXCEED 21 INCHES.

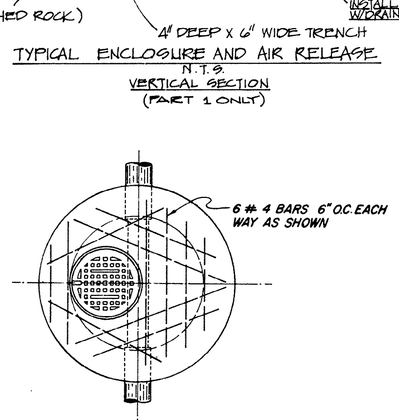
2" ISOLATING VALVE SHALL BE BRONZE AWWA CORPORATION STOP--RATED 150 PSI

2" TAPPING SADDLE SHALL BE USED WHERE THICKNESS OF PIPE DOES NOT PERMIT A FULL THREAD.

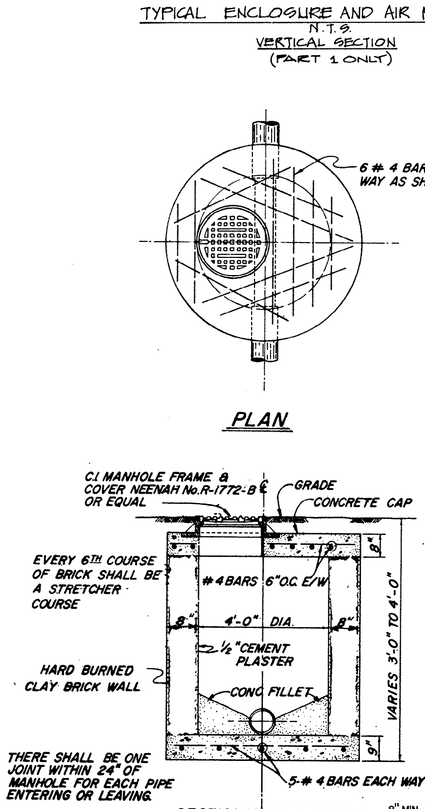
AIR VALVE SHALL BE PROVIDED WITH 1" BLOW OFF VALVE; NO. OUTLET & VALVE IN TOP; QUICK DISCONNECT HOOK

INSIDE DIMENSIONS OF MANHOLE IN DIRECTION PERPENDICULAR TO PIPE LINE (DIM "A") SHALL BE EQUAL TO PIPE DIA. PLUS BELL, BUT NOT LESS THAN 4 FT

INSIDE DIMENSION FOR ENCLOSURE IN DIRECTION PARALLEL TO FORCE MAIN SHALL BE 4 FT.

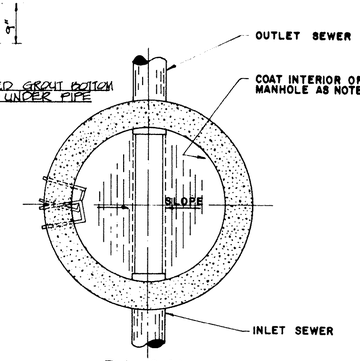



PLAN

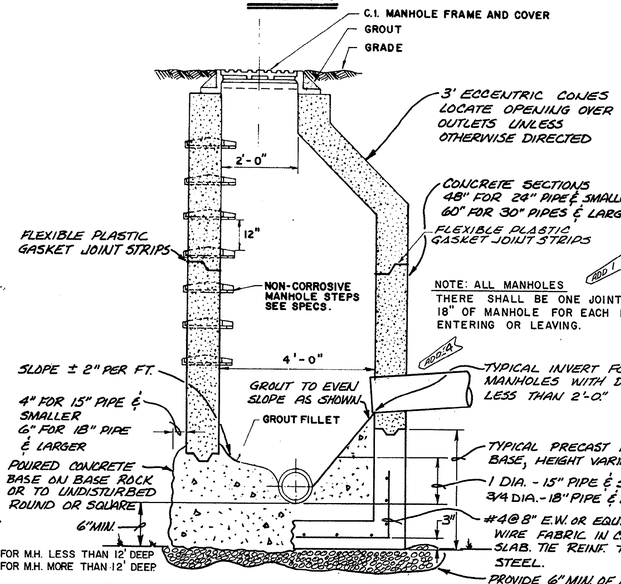



SECTIONAL ELEVATION

SHALLOW MANHOLE

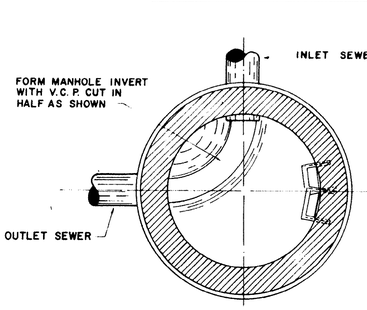



PLAN

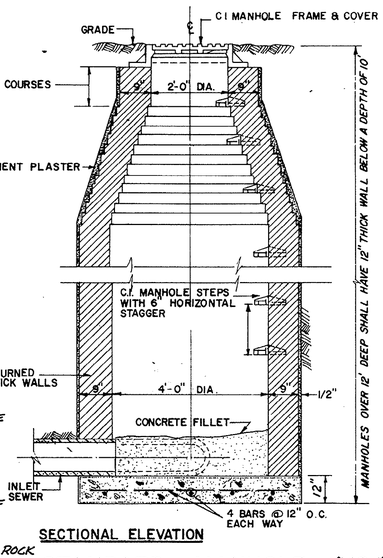



8" MIN. FOR M.H. LESS THAN 12' DEEP
12" MIN. FOR M.H. MORE THAN 12' DEEP

TYPICAL PRECAST MANHOLE

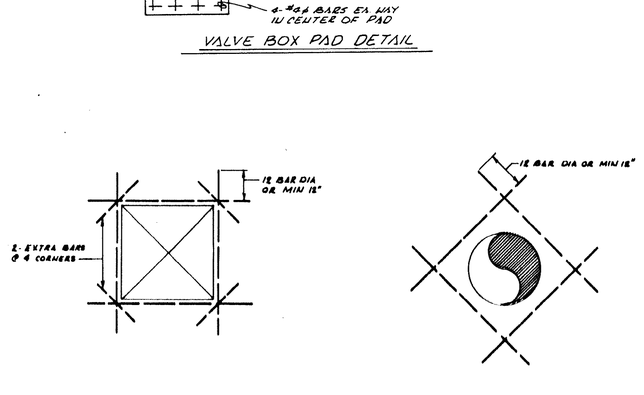



PLAN BELOW CORBEL




SECTIONAL ELEVATION

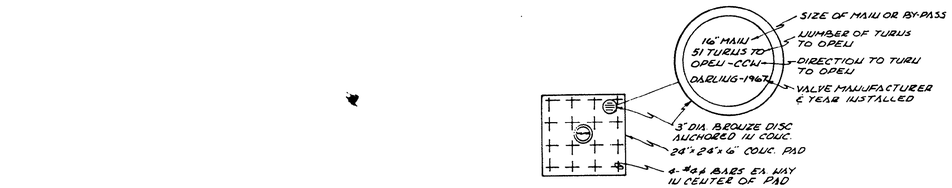
STANDARD MANHOLE (NO.1)




## TYPICAL UNDERGROUND PLUG VALVE DETAIL

NOT TO SCALE

NON-LUBRICATED PLUG VALVES 10" AND LARGER SHALL BE EQUIPPED WITH BURIED WORM GEAR ACTUATORS. WHERE VALVES 14" AND LARGER MUST BE RESTRAINED, FLANGE VALVES SHALL BE USED WITH 'SHORT' ADAPTOR PIECES.

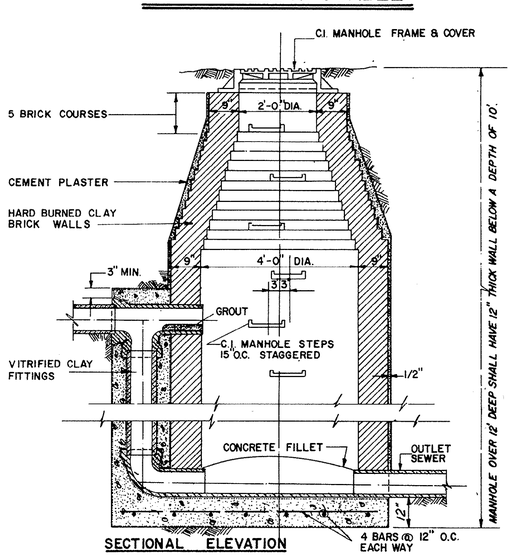



VALVE BOX PAD DETAIL




NOTE: PROVIDE ADDITIONAL REINFORCING STEEL AT ALL OPENINGS 12" OR LARGER. BARS TO BE #6 MIN OR SAME SIZE AS LARGEST BAR IN WALL OR SLAB. BARS TO BE PLACED IN ONE LAYER FOR WALL OR SLAB THICKNESS UP TO 8". 2 IN TWO LAYERS (EACH FACE) FOR THICKNESSES GREATER THAN 10".

## DETAILS OF ADDITIONAL REINFORCING AROUND OPENINGS IN CONCRETE WALLS AND SLABS




PLAN BELOW CORBEL

SECTIONAL ELEVATION

DROP MANHOLE (NO.2)

08-01-067

WASTEWATER SYSTEM IMPROVEMENTS FOR THE GRAND STRAND WATER & SEWER AUTHORITY

BLACK, CROW AND EIDSNESS, INC.
ENGINEERS

DRAWN BY: N.G. | DATE: MAY, 1978
CHECKED BY: [illegible] | FILE NO. CA6850571

SCALE: NOT TO SCALE

TYPICAL DETAILS | SHEET NO. T-2

IC 450381-05[12]