POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

SCALE IN FEET
20 0 20 40

STA 14+15.00, 35.00' LT.
SIDEWALK CHASE
TC = 264.92
(FLOW TOWARDS CURB. SEE DETAIL, SHT. DD4.)

NE 50TH AVE
PC Sta = 0+60.70
1+00
12" P.V.C.

STA 11+32.00, 35.00'RT
COMB. CURB INLET (TYPE 1)
TC=268.48
IE 10" OUT (NW) = 264.48

30 LF 10" STM PIPE, SL=0.090

13+00
ST. JOHNS RD
14+00
15+00
10" A.C.

MATCH LINE STA 16+00
SEE DWG DP02

23 LF 10" STM PIPE, SL=0.053

STA 11+64.7, 54.4'RT+-*
CATCH BASIN TYPE 1
GRATE EL = 267.06
IE 10" OUT (NW) = 263.00

* ALIGN INLET WITH CURB RADIUS, SEE DWG. I01, DD3

108 LF 12" STM PIPE.
SL=0.008 REMOVE EXISTING 8" STM PIPE AND REPLACE WITH 12" STM

STA 11+62.0, 33.0'+- RT
48" TYPE 3 MH
RIM=267.7
IE 12" IN (NE)=261.62
IE 10" IN (SE) = 261.79
IE 10" IN (SW) = 261.79
IE 18" OUT (NW)=261.12 (EXISTING)
REMOVE EXISTING INLET AND CONSTRUCT NEW MANHOLE

EOP Sta = 1+14.36

STA 12+70.00, 30'± RT
48" TYPE 3 MH
RIM=266.39
IE 10" IN (SE)=262.60
IE 12" OUT (SW)=262.43
REMOVE EXISTING INLET AND CONSTRUCT NEW MANHOLE

5 LF 10" STM PIPE
SL=0.100

STA 12+70.00, 35.00' RT
COMB CURB INLET (TYP.1)
TC=266.73
IE 10" OUT (NW)=263.10

PRELIMINARY

GB= 11+30.00
ELV= 269.00

FG PROFILE
ROADWAY CENTERLINE

g1 = -1.28%

g2 = -0.75%

GAS

EXISTING GRADE
ROADWAY CENTERLINE

270
260
250
240

DESIGNED ME/JM
DRAWN KB/RK
CRP 301422
HOR. SEE SHEET
VERT. SEE SHEET
DATE 07/31/05
DWG: DP1
SHEET 72 OF 151

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STATE OF WASHINGTON
MILNE
STEVEN L. MILNE
STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (B.O.P. TO STA 16+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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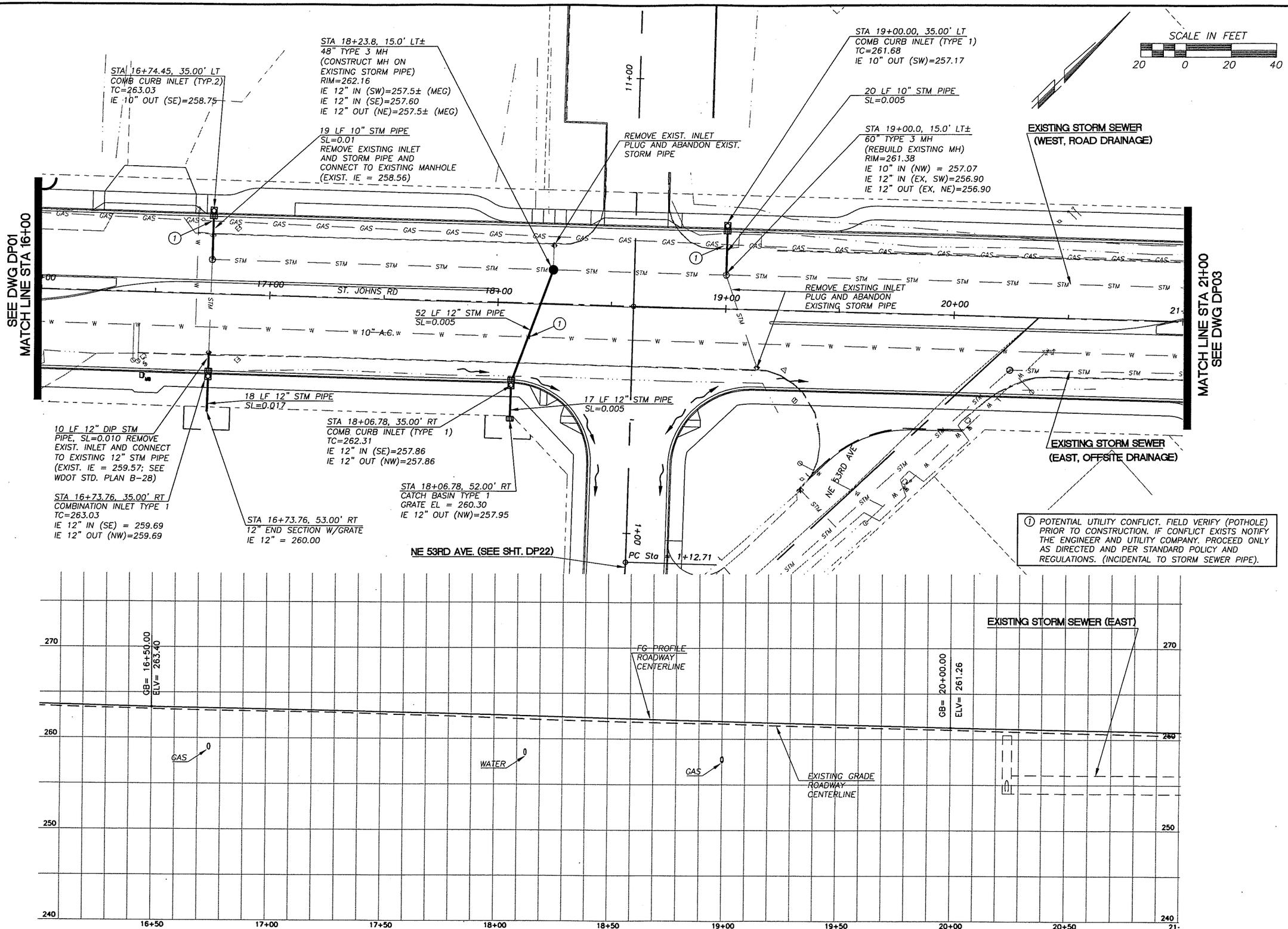

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CRP 301422
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VERT. SEE SHEET
DATE 07/31/05
DWG: DP2
SHEET 73 OF 151

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MICHAEL E. JOHNSON
31148
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 16+00 TO 21+00)

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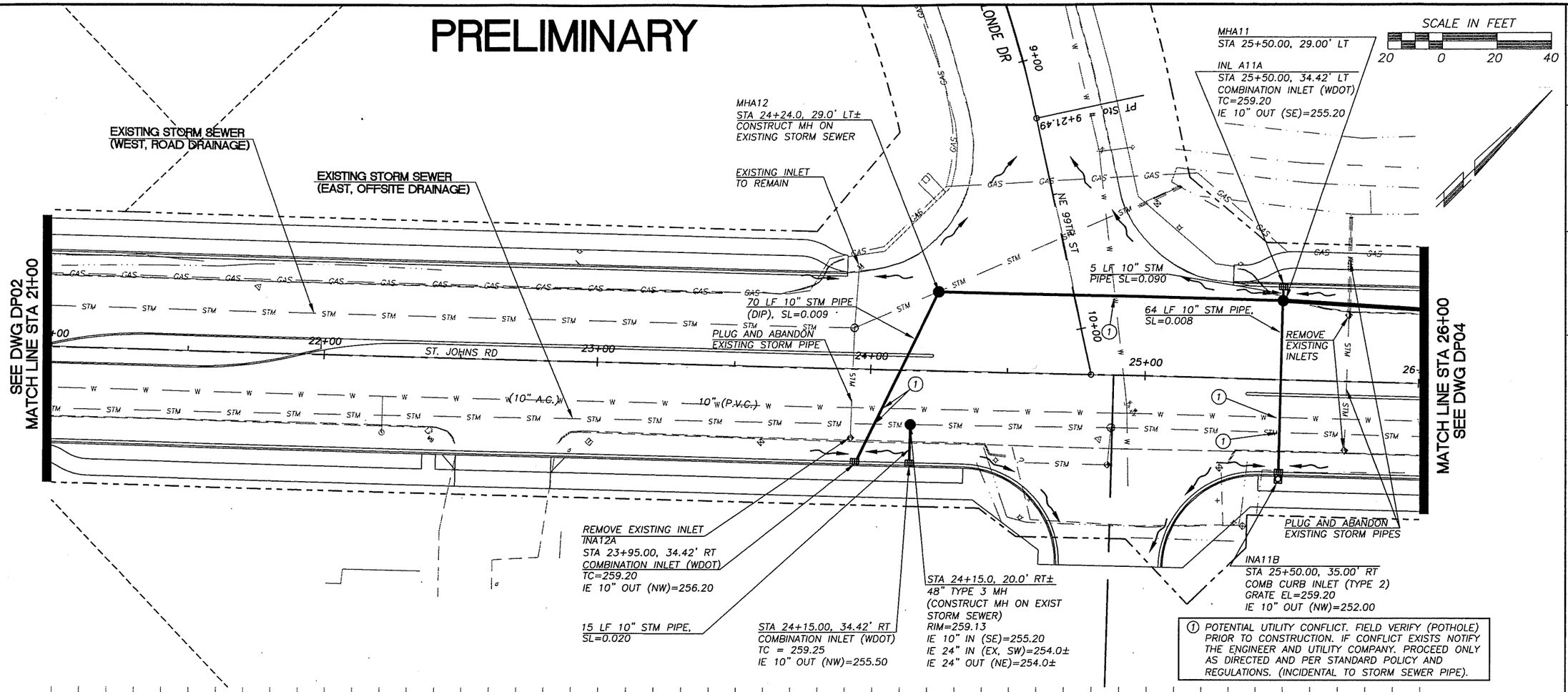
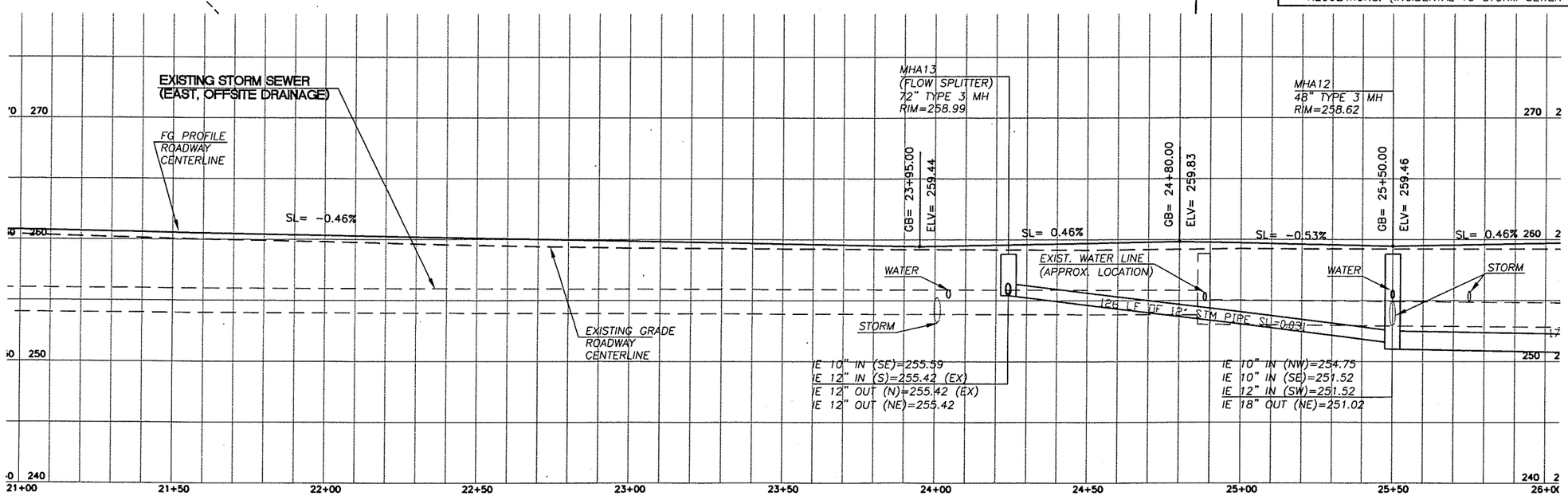
PRELIMINARY





DESIGNED	NE/JM
DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	DP3
SHEET	74 OF 151

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NICHOLAS
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 21+00 TO 26+00)

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PRELIMINARY

SCALE IN FEET
20 0 20 40

WEST STORM SEWER
(ROAD DRAINAGE)

INLA10D
STA 27+50.00, 34.07' LT
CATCH BASIN TYPE 1
GRATE EL=258.64
IE 10" OUT (NE)=254.50

14 LF 10" STM PIPE,
SL = 0.043

MHA10
STA 27+70.00, 21.00'LT

EAST STORM SEWER
(OFFSITE DRAINAGE, EXISTING)

20 LF 10" STM PIPE,
SL = 0.020

INLA10C
STA 27+70.00, 35.00' LT
COMB CURB INLET (TYP.2)
TC=259.23
IE 10" IN (SW)=254.10
IE 10" OUT (SE)=253.93

MHA9
STA 29+92.00, 29.00' LT

SEE DWG. DP24

SEE DWG DP03
MATCH LINE STA 26+00

MATCH LINE STA 31+00
SEE DWG DP05

REMOVE EXIST INLETS.
PLUG AND ABANDON EXIST
STM SEWER LATERALS

ST. JOHNS RD

MHA8
STA 30+75.00, 29.00' LT

(10"w PVC)

55 LF 10" STM PIPE
(DIP), SL=0.010

INLA10B
STA 27+50.00, 34.42' RT
COMBINATION INLET (WDOT)
TC = 259.14
IE 10" OUT (NE)=255.80

20 LF 10" STM PIPE,
(DIP), SL = 0.010

INLA10A
STA 27+70.00, 34.42' RT
COMBINATION INLET (WDOT)
TC = 259.23
IE 10" IN (SW)=255.60
IE 10" OUT (NW)=255.60

STA 28+85.1, 19.5' RT±
60" TYPE 3 MH
(CONSTRUCT MH ON EXIST STM
SEWER)
RIM=259.61
IE 30" IN (SW)=252.0±(EXIST)
IE 10" IN (SE)=253.07
IE 30" OUT (NE)=252.0±(EXIST)

35 LF 10" STM PIPE,
SL = 0.012

STA 28+85.10, 55.00' RT
CATCH BASIN TYPE 1
GRATE EL=256.80
IE 10" OUT (NW)=253.50

48 LF 18" STM PIPE
SL=0.068

MHA9A (OVERFLOW MH)
STA 29+92.0, 19.0' RT±
72" TYPE 3 MH
(REPLACE EXISTING MH)
RIM=259.26
IE 18" IN (SE)=251.88 (EXIST)
IE 30" IN (SW)=251.78 (EXIST)
IE 18" OUT (NE)=251.78 (EXIST)
IE 18" OUT (NW)=253.28

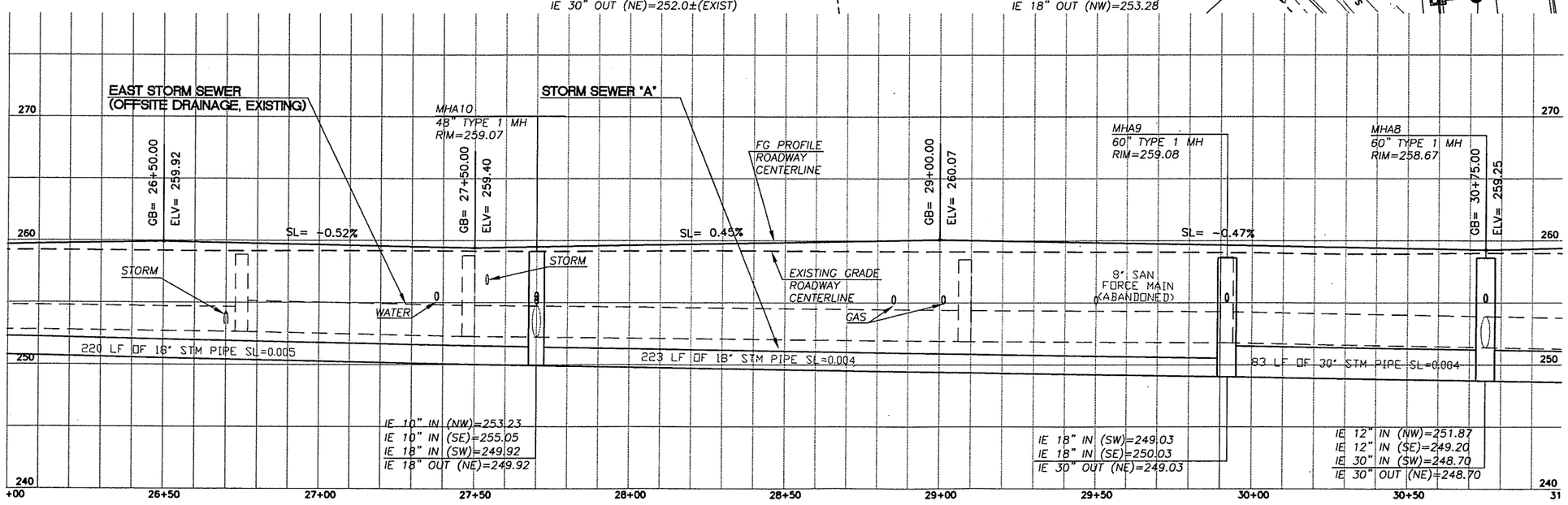
NE 99TH ST
(SEE SHT. DP24)

99TH ST
(18" PVC)

SAN FM (ABD)

PC Sta) =
1+00

① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).



DESIGNED	ME/JM
DRAWN	KB/RK
CRP	301422
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VERT.	SEE SHEET
DATE	07/31/05
DWG:	DP4
SHEET	75 OF 151

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ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 26+00 TO 31+00)

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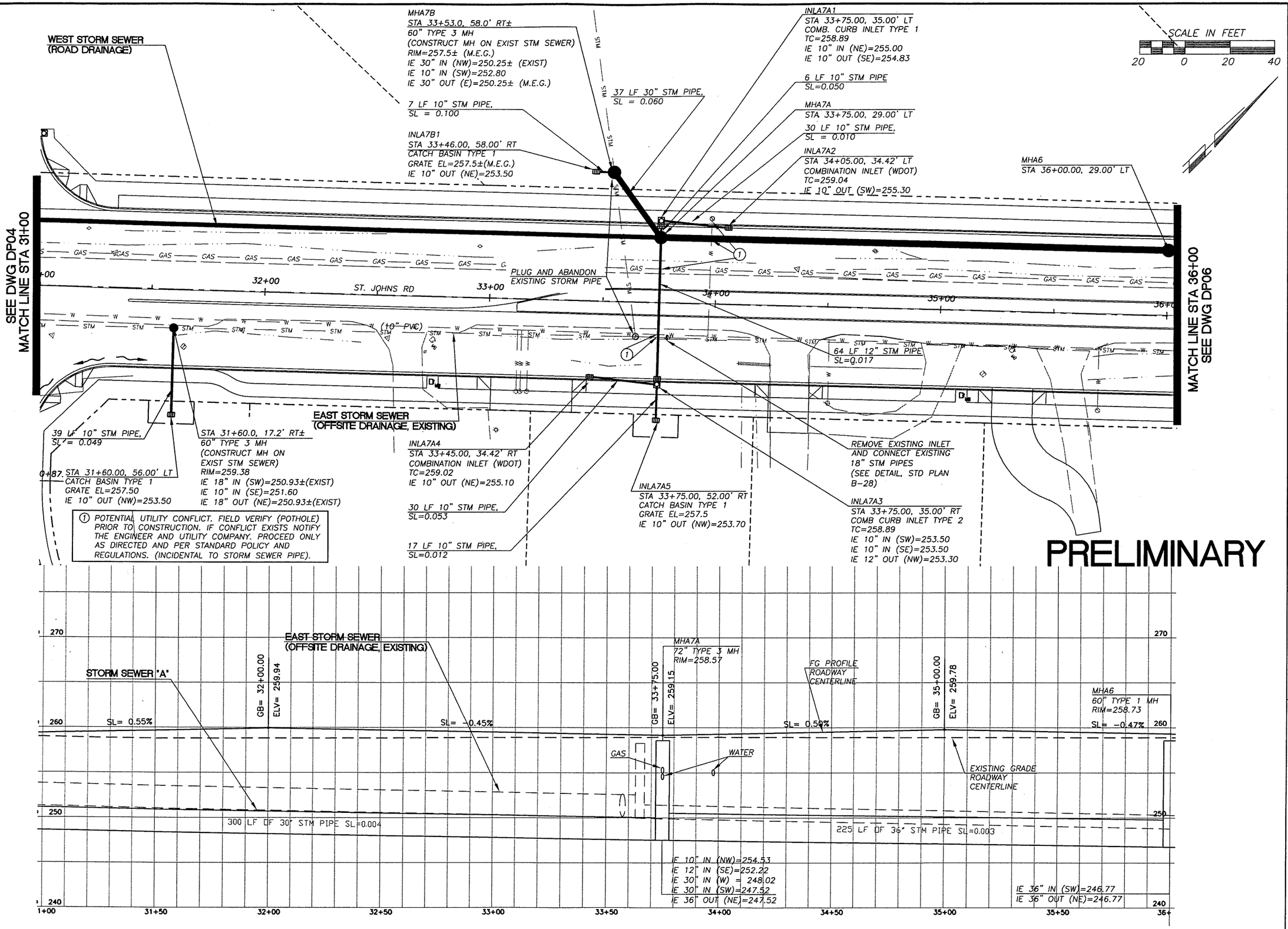

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CRP	301422
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VERT.	SEE SHEET
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DWG:	DP5
SHEET	76 OF 151

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DESIGN SECTION

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DRAINAGE PLAN ST. JOHNS (STA 31+00 TO 36+00)

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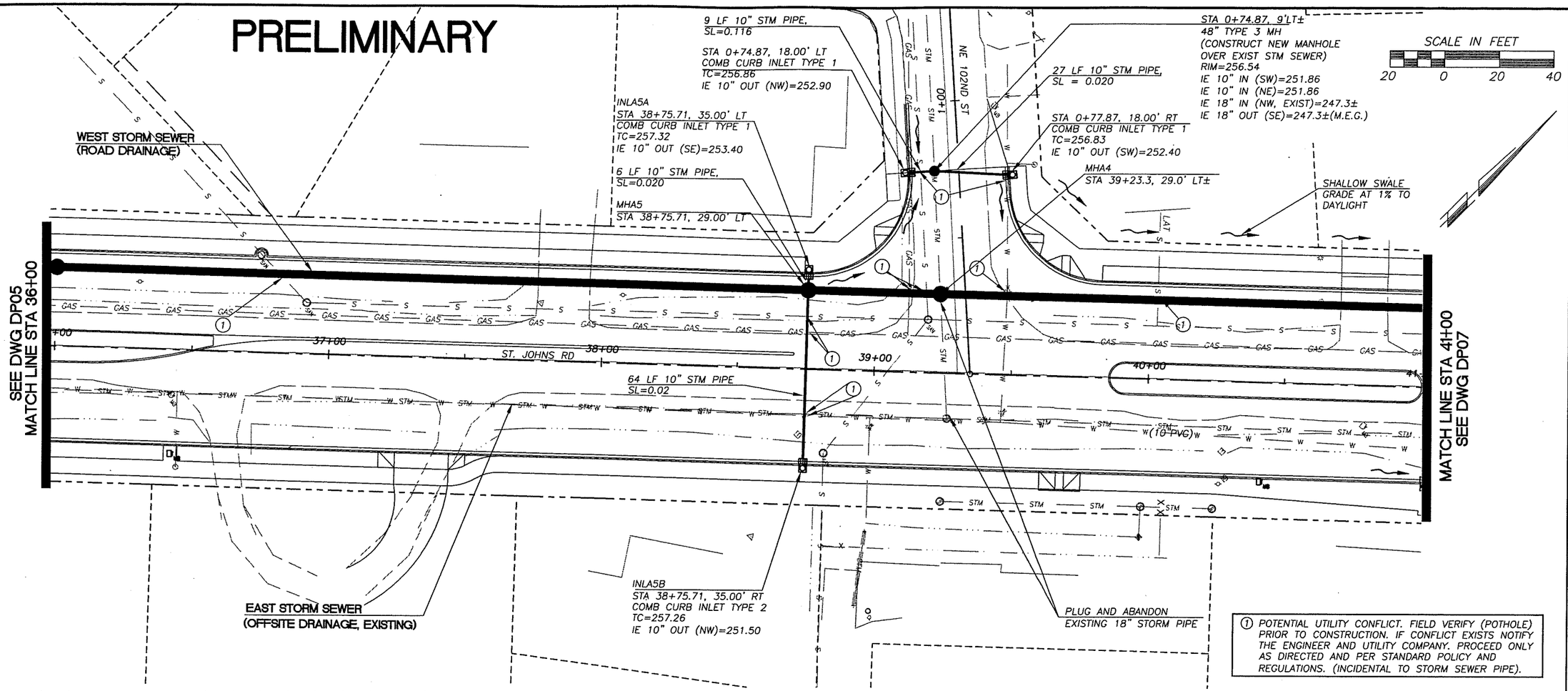
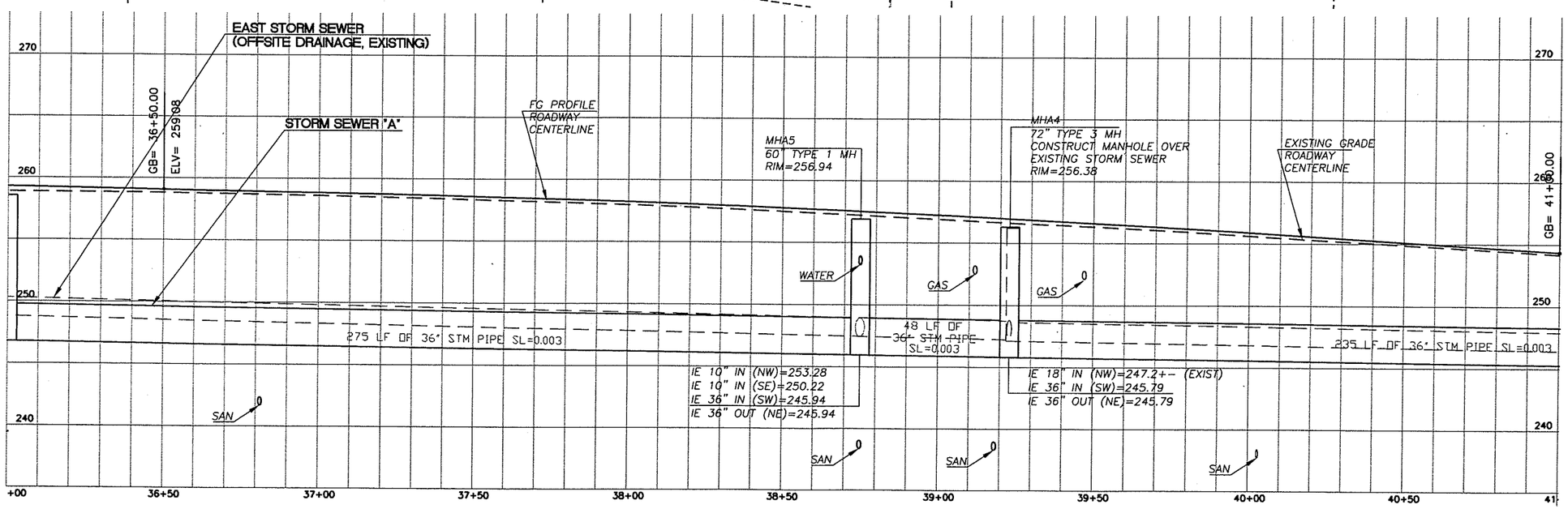
PRELIMINARY



① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).



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DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	DP6
SHEET	77 OF 151

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STATE OF WASHINGTON JOHN MILNE JR. 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 2, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 36+00 TO 41+00)

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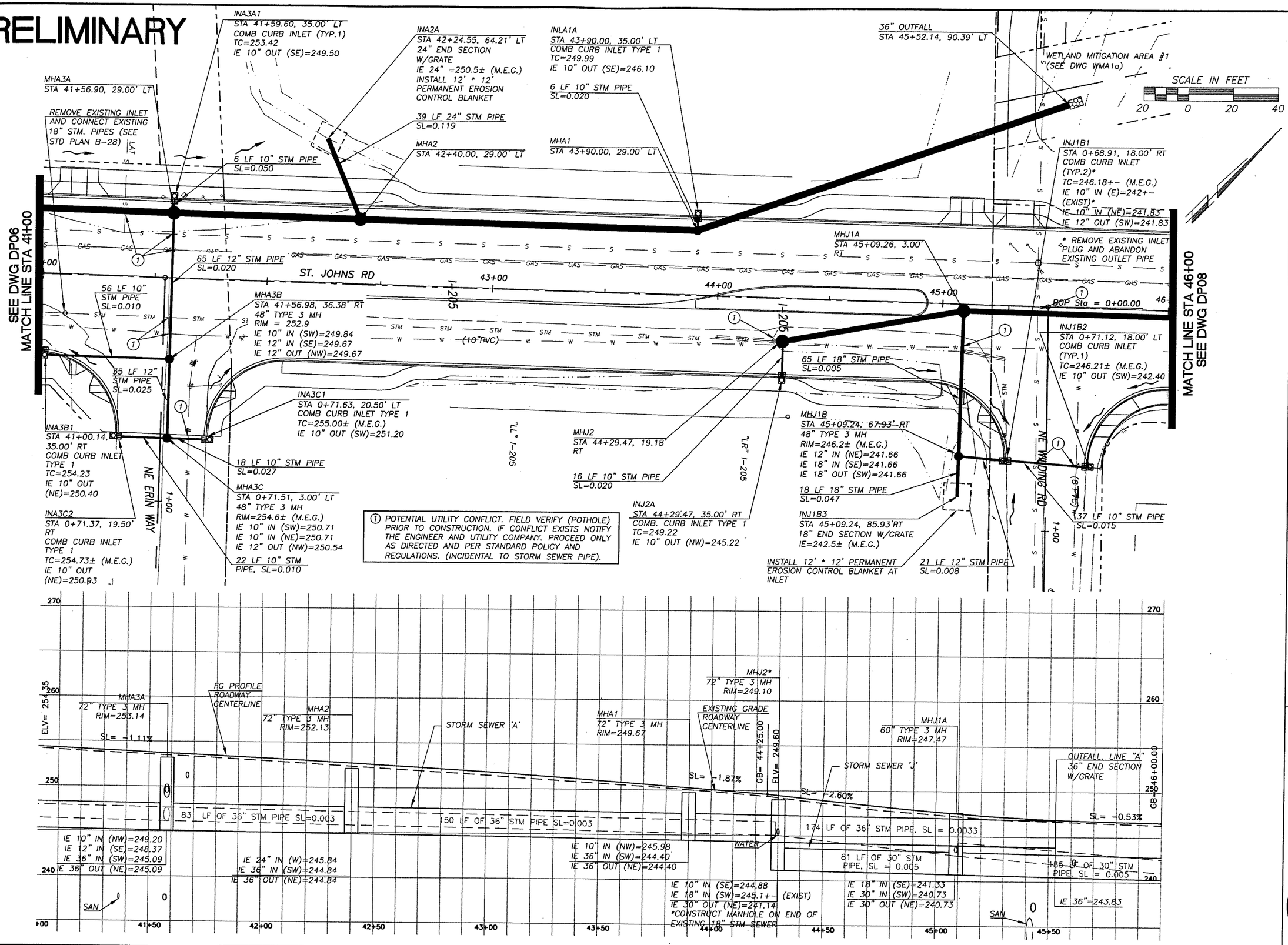

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VERT. SEE SHEET
DATE 07/31/05
DWG: DP7
SHEET 78 OF 151

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STATE OF WASHINGTON MILLIE MARIE JOHNSON 35894 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 41+00 TO 46+00)

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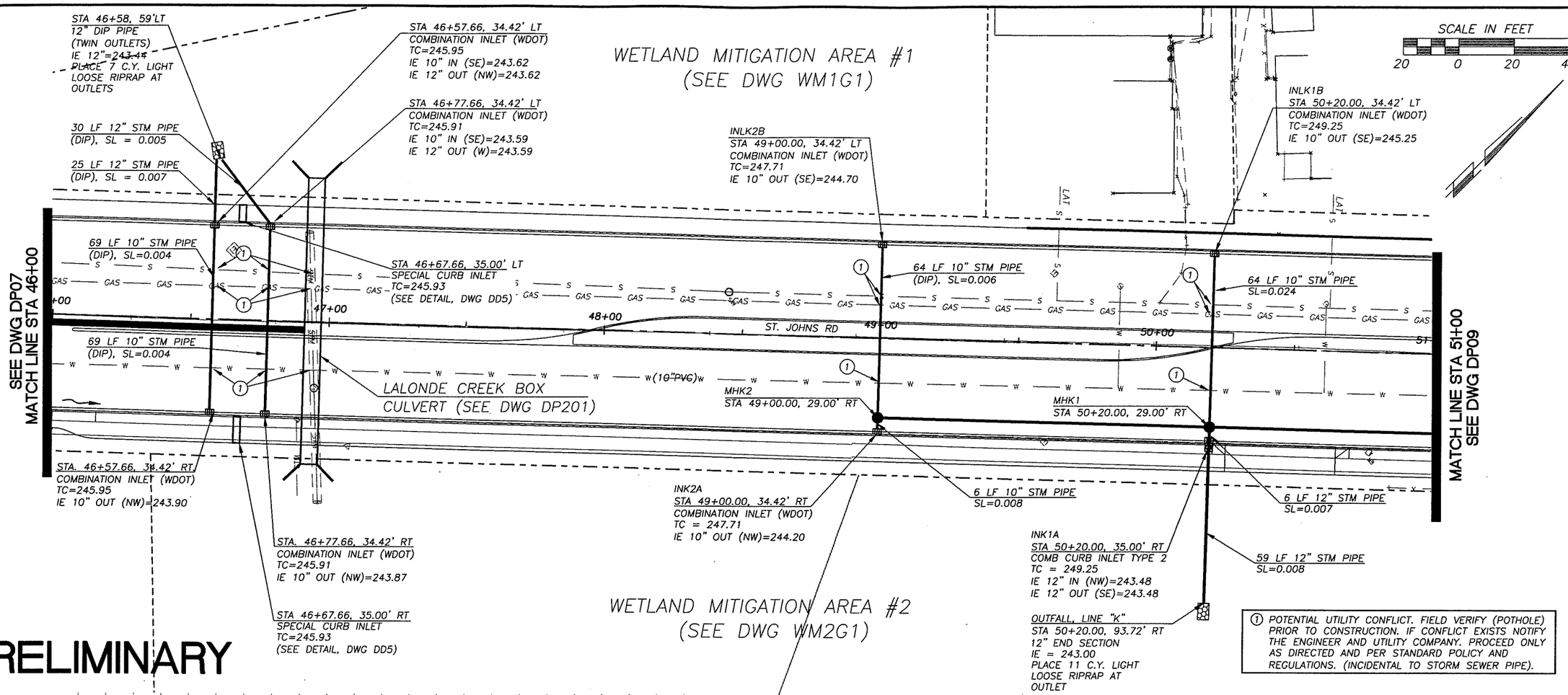
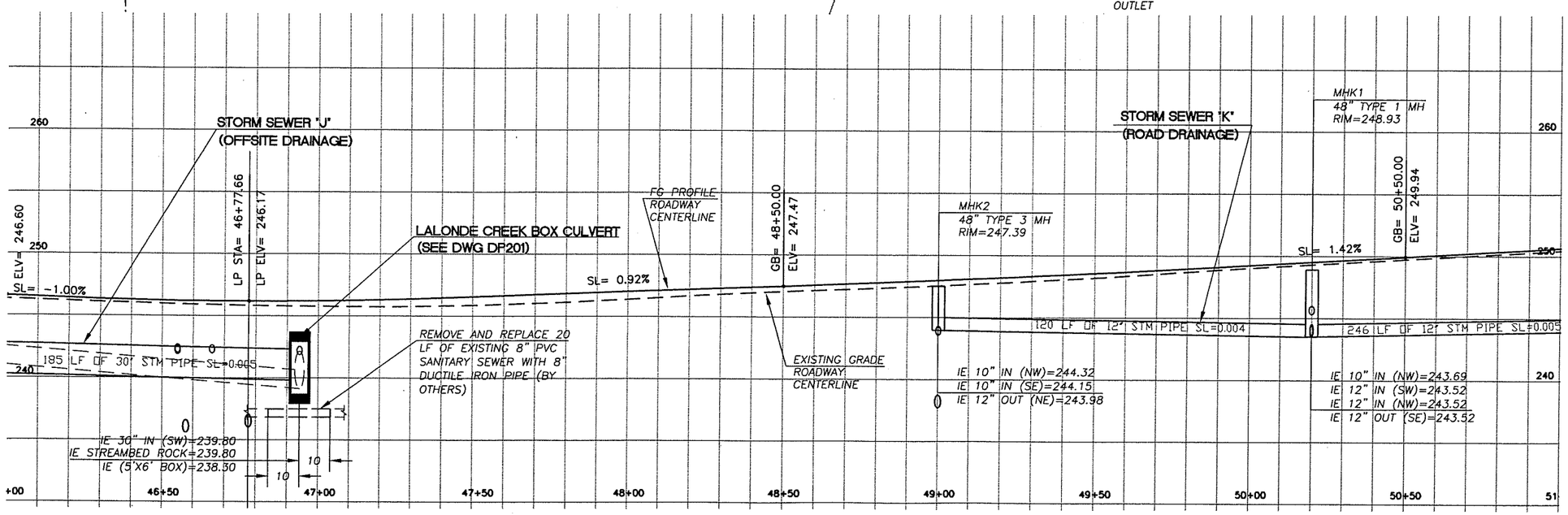


① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

PRELIMINARY



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CRP 301422
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VERT. SEE SHEET
DATE 07/31/05
DWG: DP8
SHEET 79 OF 151

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STATE OF WASHINGTON MICHAEL E. MCCLAIN 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 46+00 TO 51+00)

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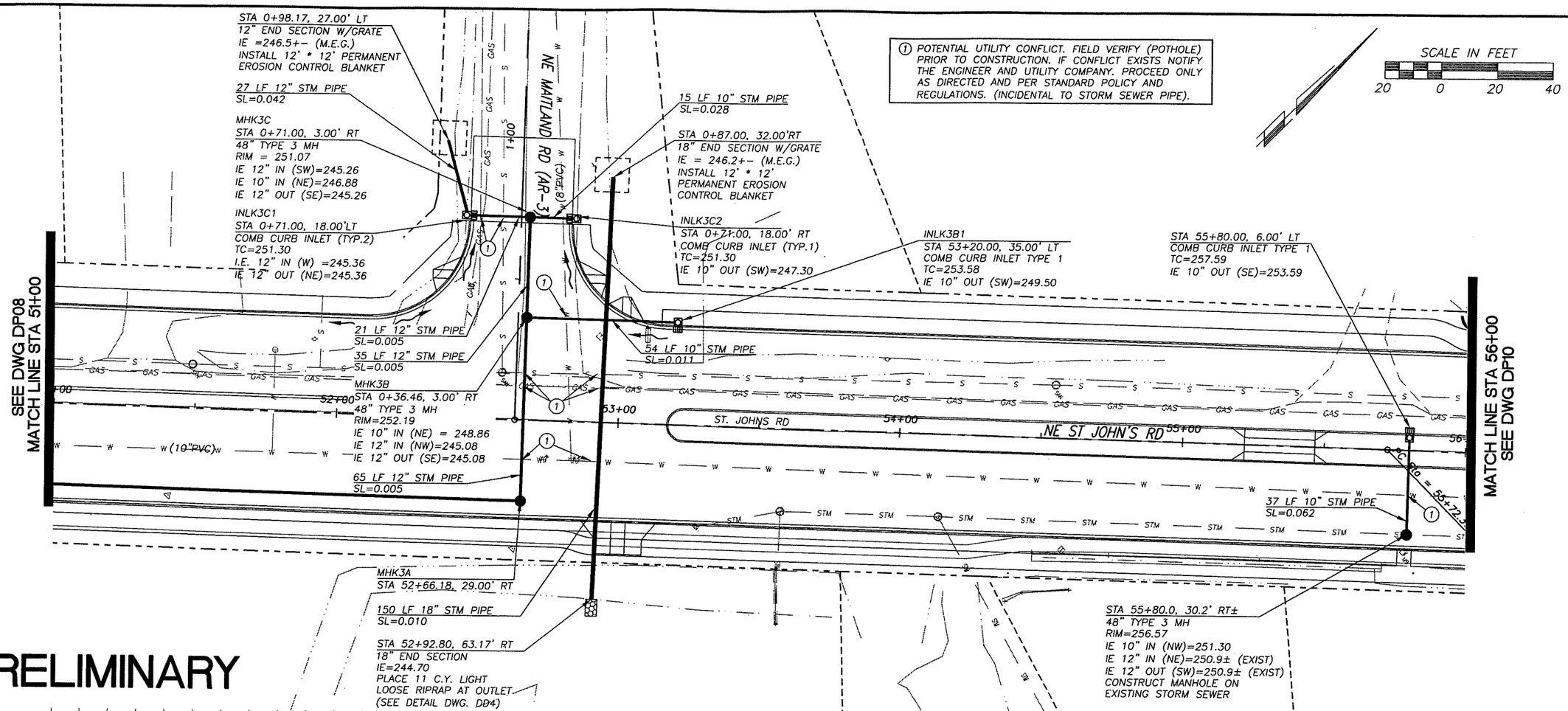
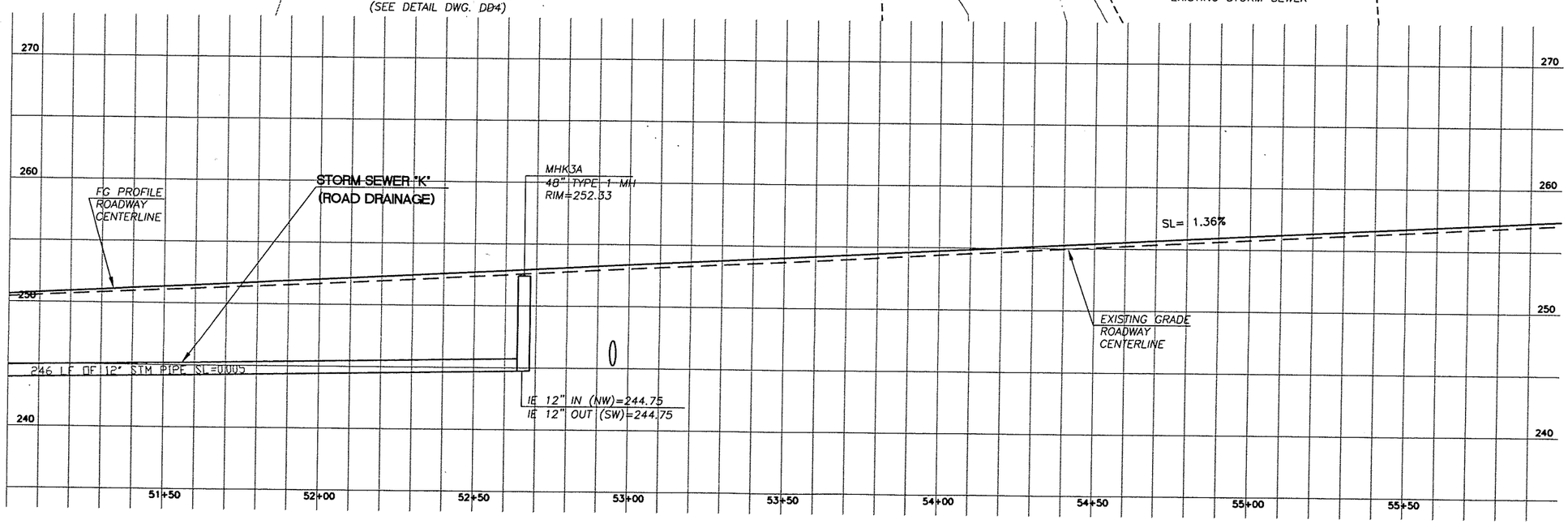


① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

SCALE IN FEET
20 0 20 40

PRELIMINARY



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DRAWN	KB/RK
CRP	301422
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VERT.	SEE SHEET
DATE	07/31/05
DWG:	DP9
SHEET	80 OF 151

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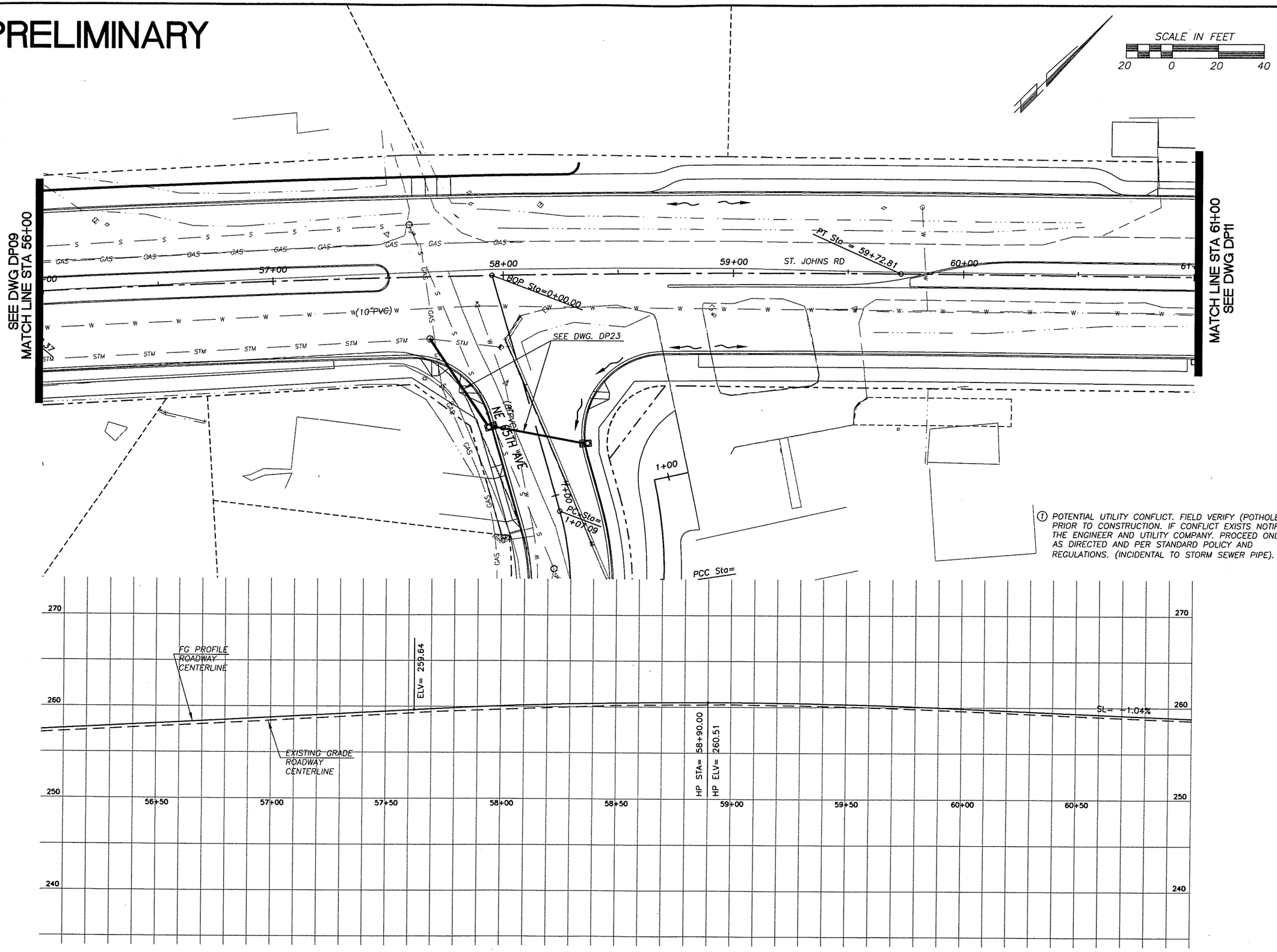

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DATE 07/31/05
DWG: DP10
SHEET 81 OF 151

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REGISTERED PROFESSIONAL ENGINEER
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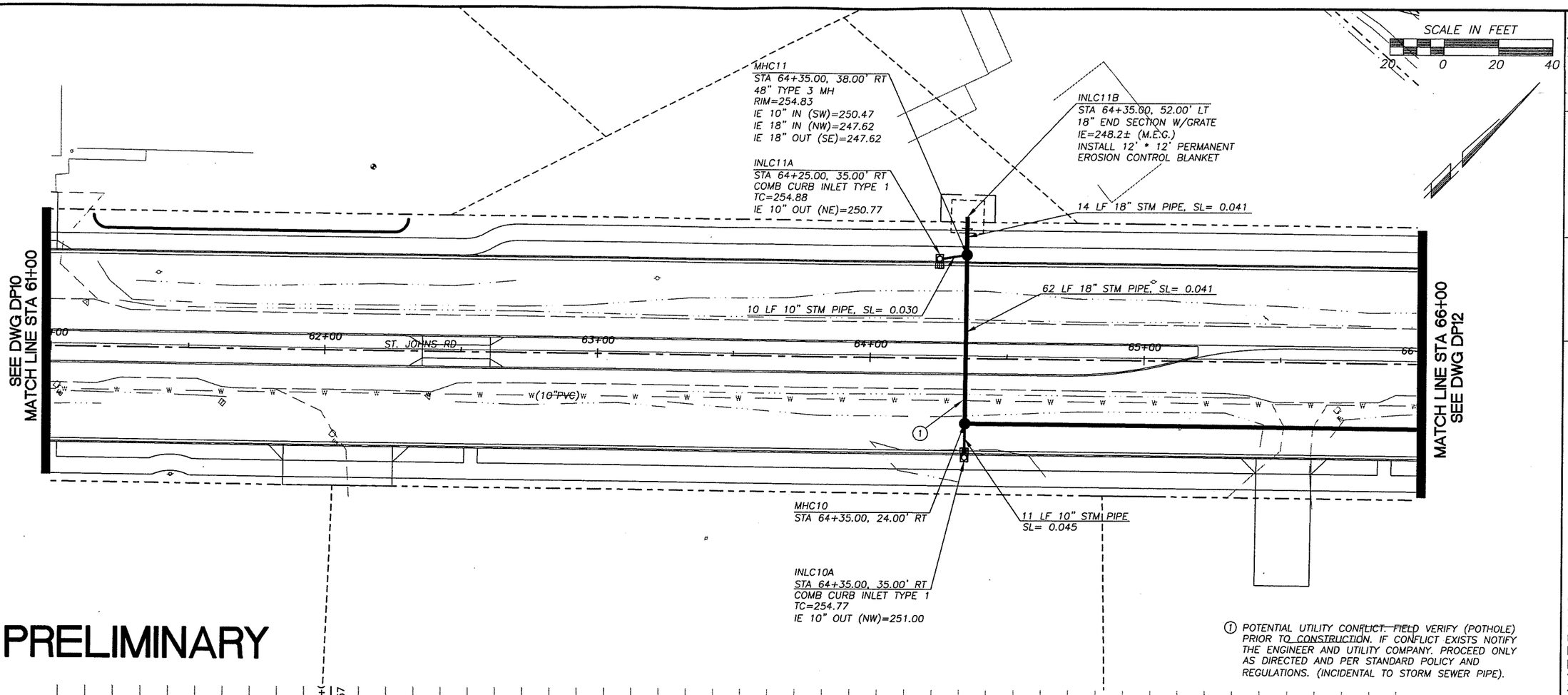
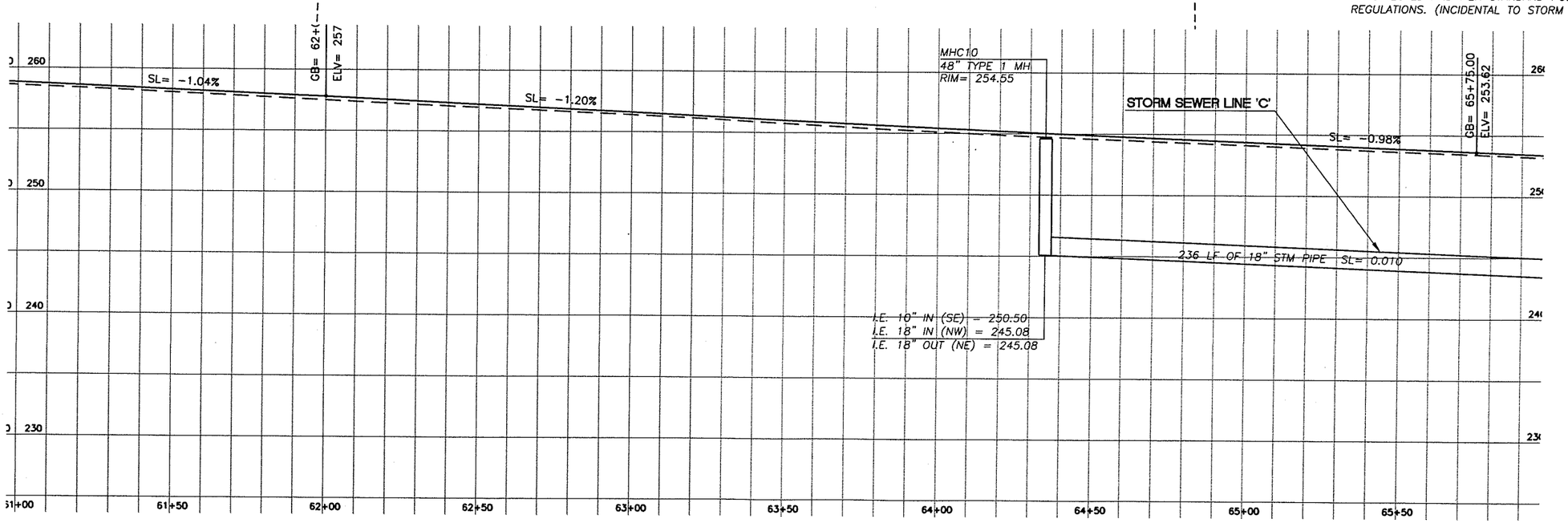


1 POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

PRELIMINARY



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VERT. SEE SHEET
DATE 07/31/05
DWG: DP11
SHEET 82 OF 151

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PRELIMINARY

SCALE IN FEET
20 0 20 40

① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

SEE DWG DP11
MATCH LINE STA 66+00

MATCH LINE STA 71+00
SEE DWG DP13

NE 109TH ST

PRC Sta = 11+27.11

STORM SEWER LINE 'L'
(SEE SHT. DP25)

INLC9B2
STA 66+71.00, 58.00' LT
CATCH BASIN TYPE 1
RIM=250.00
IE 12" OUT (SE)=246.00

INLC9B1
STA 66+61.00, 35.00' LT
COMB CURB INLET TYPE 1
TC=252.61
IE 10" OUT (N)=248.80

20 LF 12" STM PIPE,
SL = 0.038

11 LF 10" STM PIPE,
SL = 0.050

MHC9B
STA 66+71.00, 38.26' LT
48" TYPE 3 MH
RIM=252.56
I.E. 12" IN (NW)=245.24
I.E. 10" IN (SW)=248.25
I.E. 12" OUT (SE)=245.24

63 LF 12" STM PIPE,
SL = 0.032

INLC7A
STA 68+54.86, 52.00' LT
24" END SECTION W/GRATE
IE=244.40
INSTALL 12' * 12' PERMANENT
EROSION CONTROL BLANKET

76 LF 24" STM PIPE,
SL = 0.032

66+00 68+00 69+00 70+00 71+00

ST. JOHNS RD

(10"PVC) (8"PVC)

11 LF 10" STM PIPE,
SL = 0.045

PC Sta = 13+84.44

MHC8
STA 68+14.48,
24.00' RT

INLC9A1
STA 66+71.00, 35.00' RT
COMB CURB INLET TYPE 1
TC=252.53
IE 10" OUT (NW)=248.80

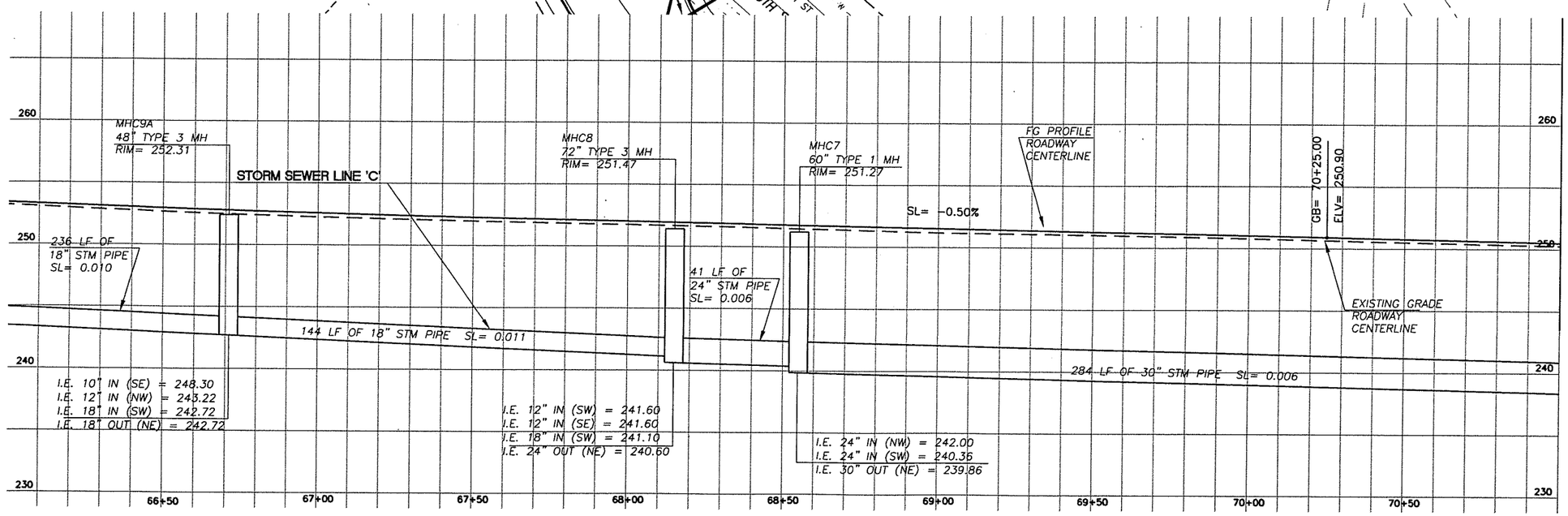
MHC9A
STA 66+71.00,
24.00' RT

MHC7
STA 68+54.86, 24.00' RT

STORM SEWER LINE 'F'
(SEE SHT. DP25 + 26)

NE 109TH ST

13+00 14+00



DESIGNED	ME/JM
DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	DP12
SHEET	83 OF 151

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EXPIRES JULY 2, 2007

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DESIGN SECTION

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DRAINAGE PLAN ST. JOHNS (STA 66+00 TO 71+00)

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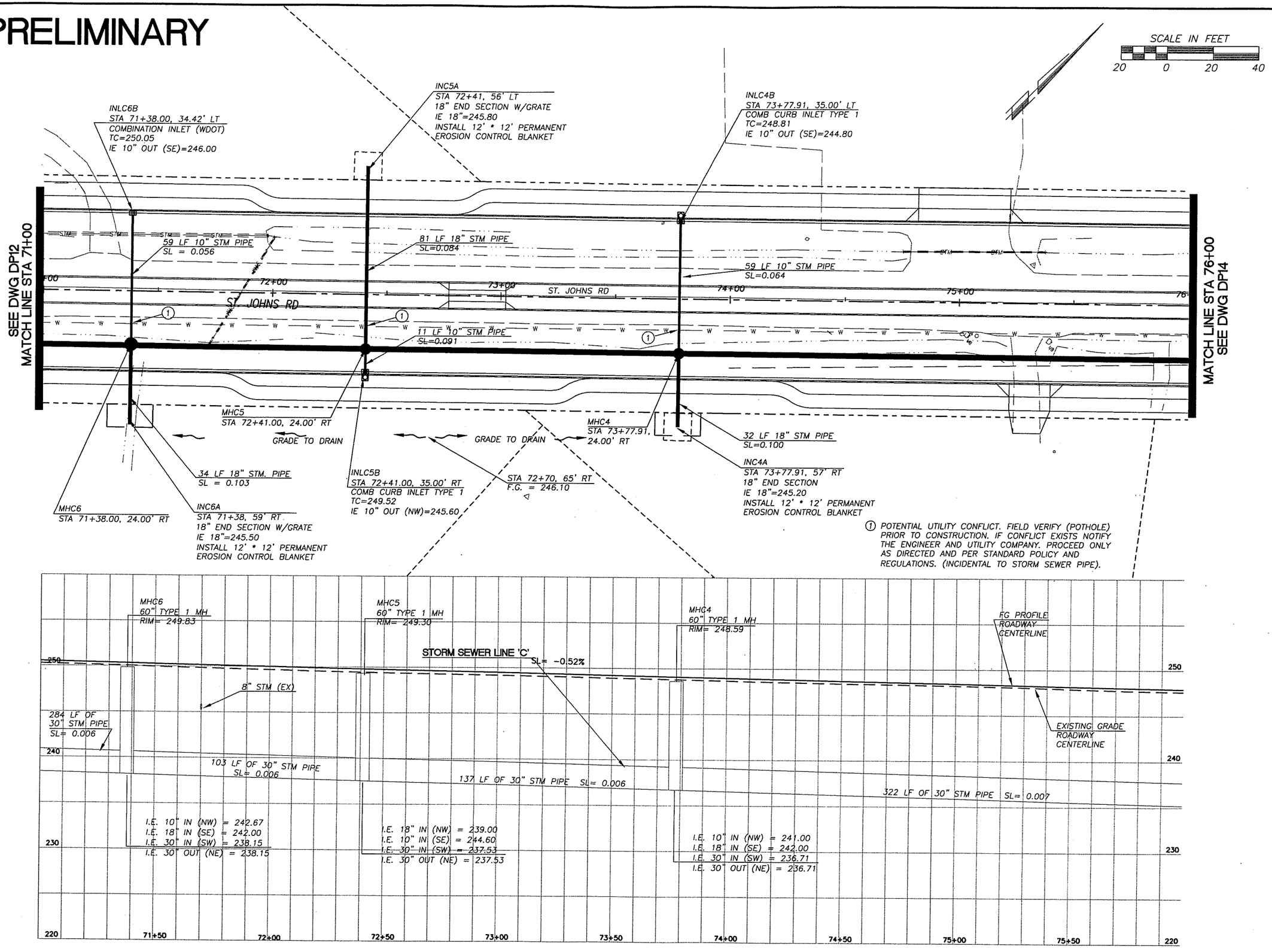

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VERT. SEE SHEET
DATE 07/31/05
DWG: DP13
SHEET 84 OF 151

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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MILLIE
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: OCT. 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 71+00 TO 76+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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PRELIMINARY

SCALE IN FEET
20 0 20 40

INLG5
STA 77+00.00, 48' LT
12" STUB, IE=239.14

INLC3B
STA 76+90.00, 35.00' LT
COMB CURB INLET TYPE 2
TC=247.21
IE 10" OUT (SE)=241.30

24 LF 12" STM PIPE,
SL = 0.010

83 LF 12" STM PIPE,
SL = 0.058

INLG4A
STA 78+19, 58' LT
18" END SECTION W/GRATE
IE 18"=243.2
INSTALL 12' * 12' PERMANENT
EROSION CONTROL BLANKET

INLC2B
STA 79+60.00, 35.00' LT
COMB CURB INLET TYPE 2
TC=245.83
IE 10" OUT (SE)=240.00

ING3B
STA 79+81, 58' LT
18" END SECTION W/GRATE
IE 18"=242.5
INSTALL 12' * 12'
PERMANENT EROSION
CONTROL BLANKET AT INLET

ING3A
STA 80+93.2, 115.1' LT
18" END SECTION W/GRATE
IE 18"=243.5
INSTALL 12' * 12' PERMANENT
EROSION CONTROL BLANKET AT INLET

121 LF 18" STM PIPE,
SL=0.039

48 LF 18" STM PIPE,
SL=0.078

PT Sta = 0+24.30

NE 70th AVE

STORM SEWER LINE 'G'
OFF-SITE DRAINAGE

SEE DWG DP13
MATCH LINE STA 76+00

MATCH LINE STA 81+00
SEE DWG DP15

61 LF 10" STM PIPE,
SL = 0.020

MHG5
STA 77+00.00, 24.27' LT

MHG4
STA 78+19.00, 24.14' LT

60 LF 10" STM PIPE,
SL = 0.033

PC Sta = 0+16.85

MHG3
STA 80+21.90, 23.92' LT

NE ST JOHN'S RD

ST. JOHNS RD

76+00 77+00 78+00 79+00 80+00 81

W (8"PVC) W

W (10"PVC) W

PC Sta=80+90.08

39 LF 18" STM PIPE,
SL = 0.046

10 LF 10" STM PIPE,
SL=0.100

INLC3A
STA 77+00.00, 34.42' RT
COMBINATION INLET (WDOT)
TC=247.16
IE 10" OUT (NW)=243.30

STORM SEWER LINE 'C'

MHC3
STA 77+00.00, 24.00' RT

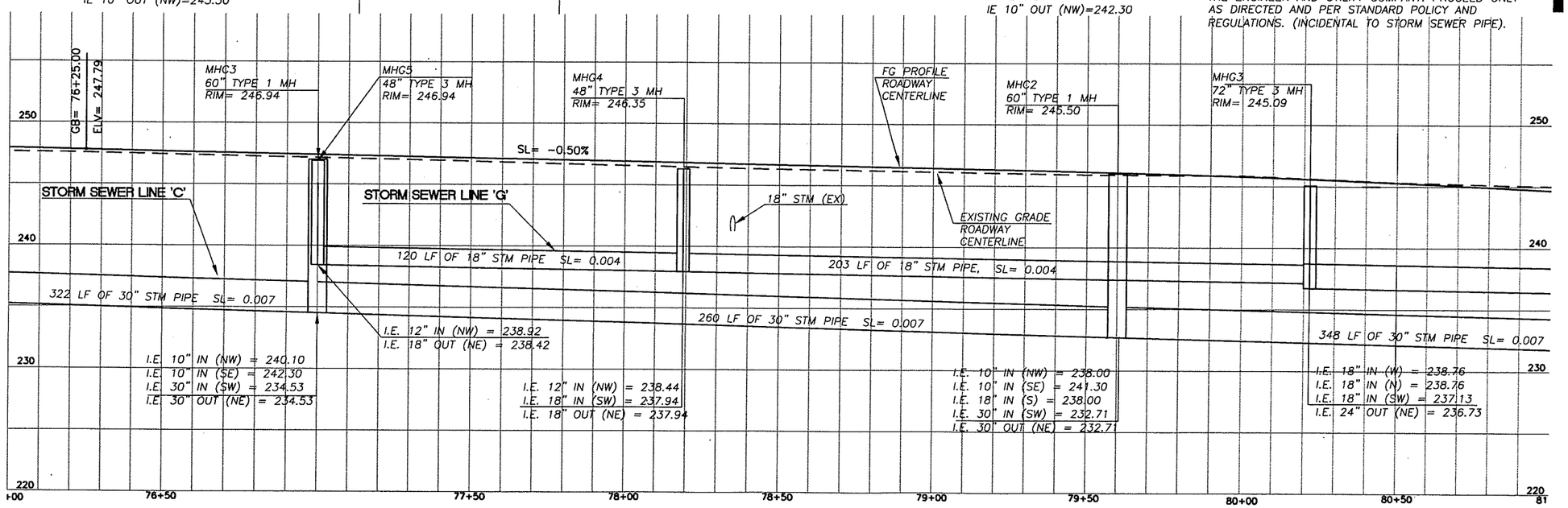
INLC2C
STA 79+32, 51' RT
18" END SECTION W/GRATE
IE 18"=239.80
INSTALL 12' * 12' PERMANENT
EROSION CONTROL BLANKET
AT INLET

10 LF 10" STM PIPE,
SL=0.100

INLC2A
STA 79+60.00, 35.00' RT
COMB CURB INLET TYPE 1
TC=245.83
IE 10" OUT (NW)=242.30

MHC2
STA 79+60.00, 24.60' RT

① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).



DESIGNED	NE/JM
DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	DP14
SHEET	85 OF 151

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON JAMES M. KIRKPATRICK 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 76+00 TO 81+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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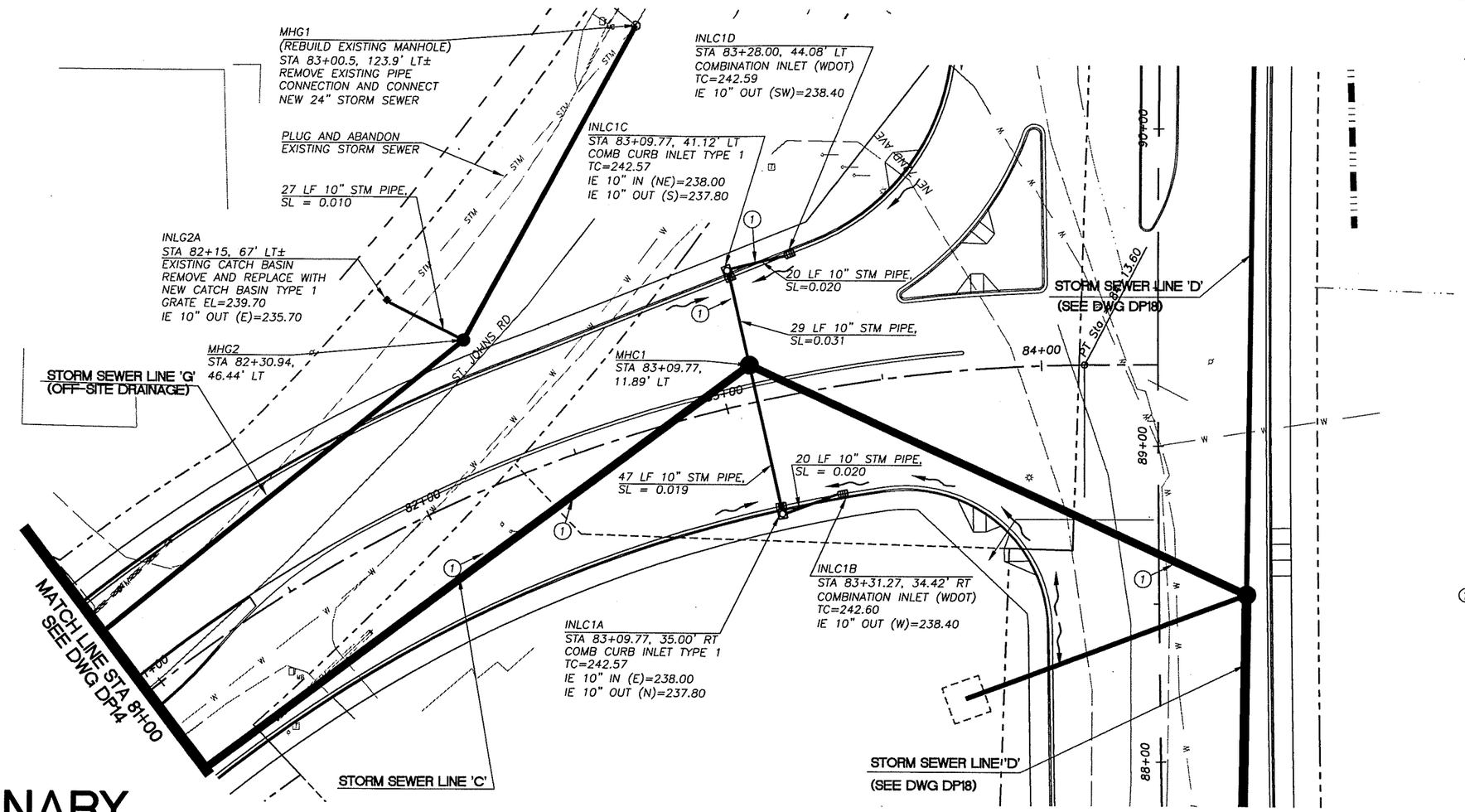

SCALE IN FEET

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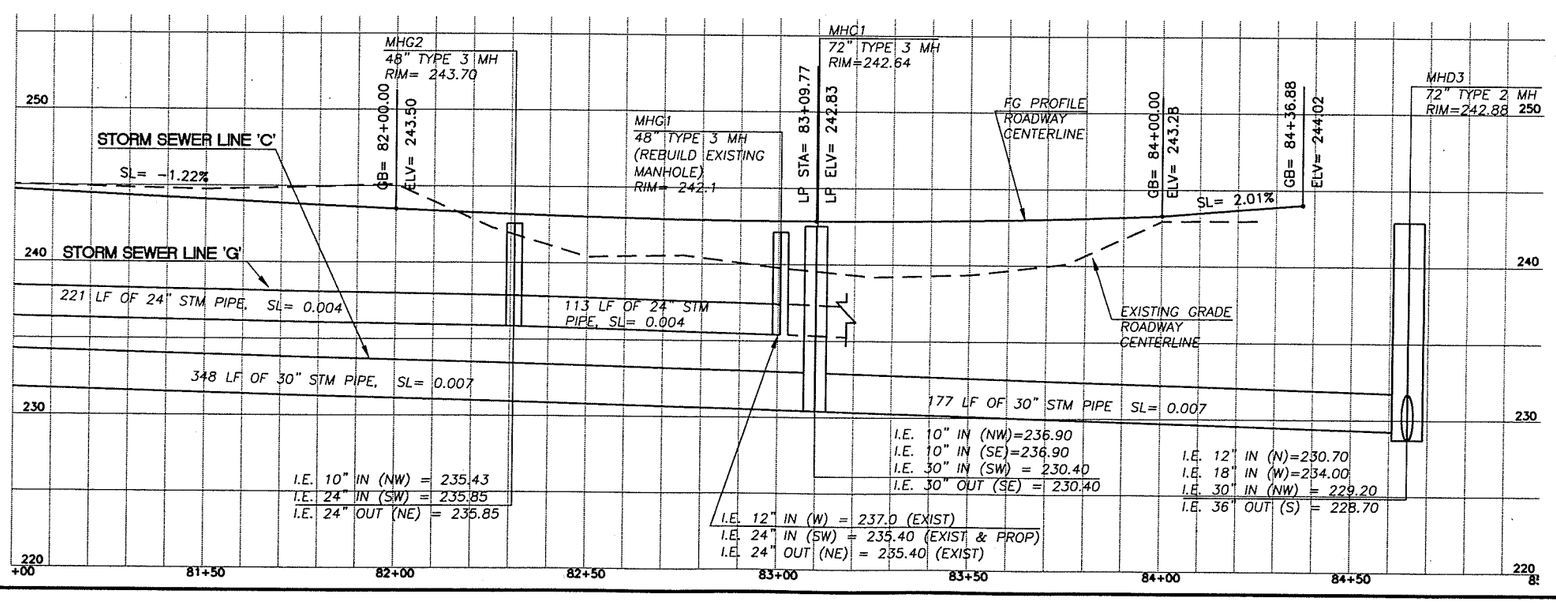
① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

PRELIMINARY



DESIGNED	ME/JM
DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG.	DP15
SHEET	86 OF 151

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON MICHAEL E. MCCLAIN 31148 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN ST. JOHNS (STA 81+00 TO 86+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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NO DRAINAGE IMPROVEMENTS, THIS SHEET

① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

SCALE IN FEET

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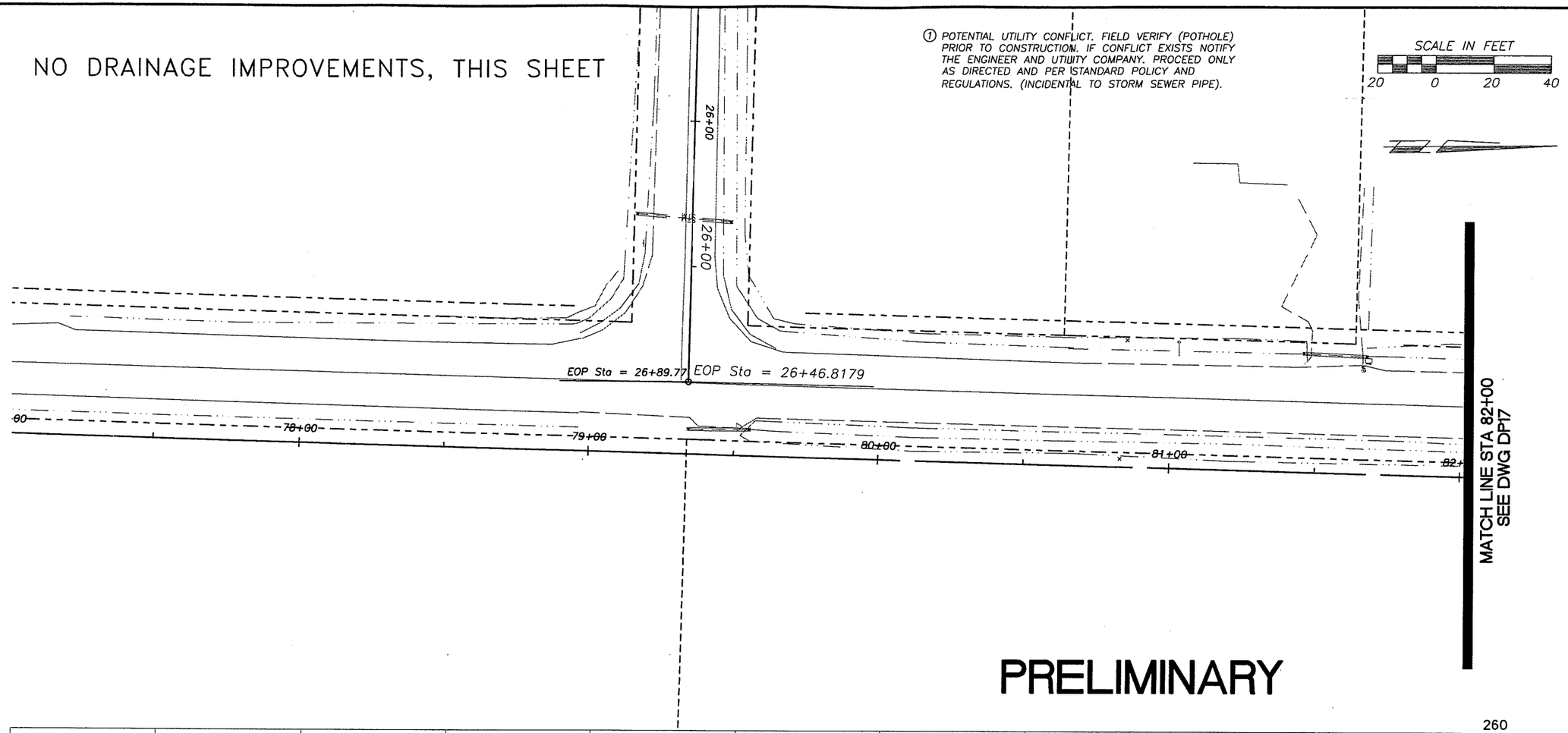
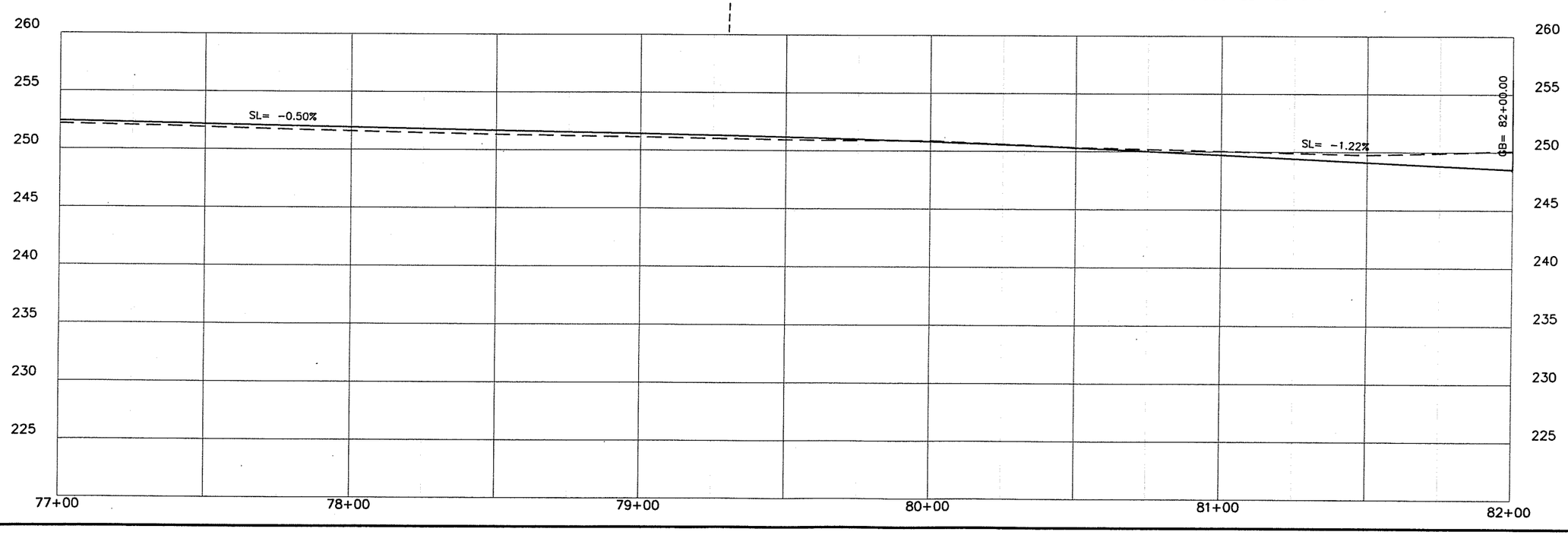


PRELIMINARY



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CRP 301422
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DWG: DP16
SHEET 87 OF 151

CALL 48 HOURS BEFORE YOU DIG
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STATE OF WASHINGTON
JILL M. REINHARD
21148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: AUGUST 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 72ND AVE (STA 77+00 TO 82+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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PRELIMINARY

① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

SCALE IN FEET
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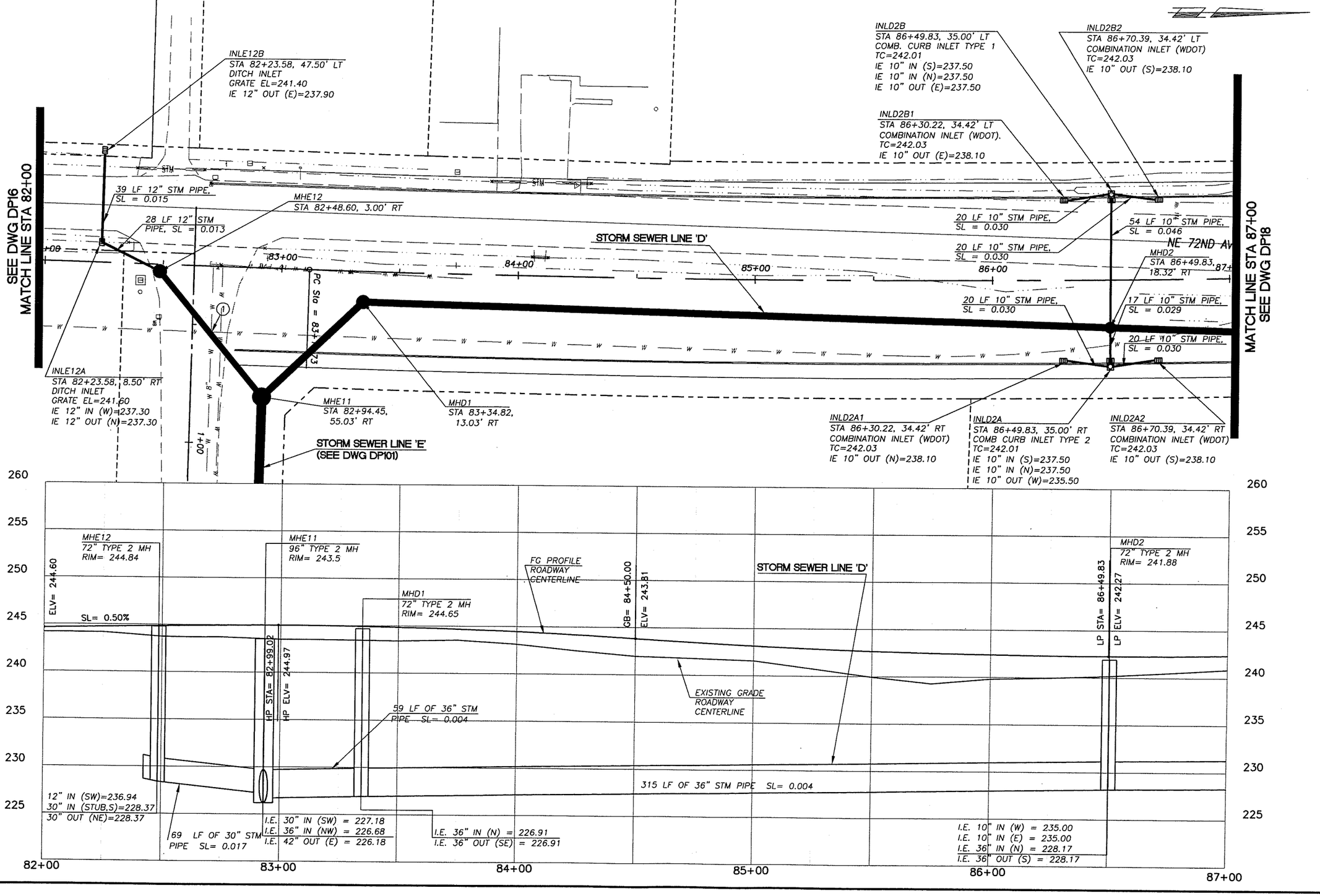

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CRP	301422
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VERT.	SEE SHEET
DATE	07/31/05
DWG:	DP17
SHEET	88 OF 151

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STATE OF WASHINGTON
MILLIE MARIE JOHNSON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 72ND AVE (STA 82+00 TO 87+00)

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CLARK COUNTY
WASHINGTON

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PRELIMINARY

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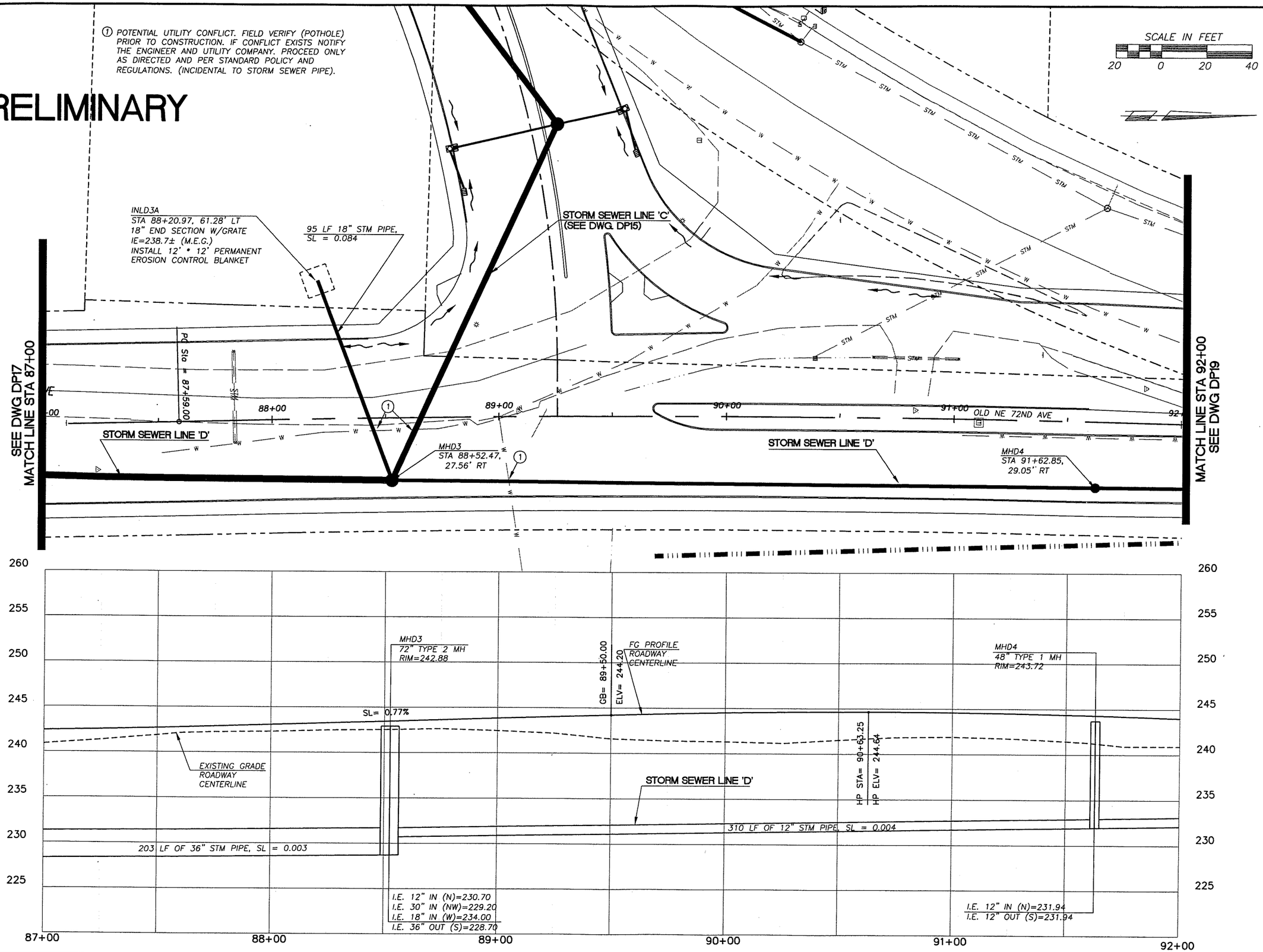

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DWG: DP18
SHEET 89 OF 151

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JOHN SHE LOTTE WILLIE WASHINGTON STATE OF REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 2, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 72ND AVE (STA 87+00 TO 92+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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PRELIMINARY

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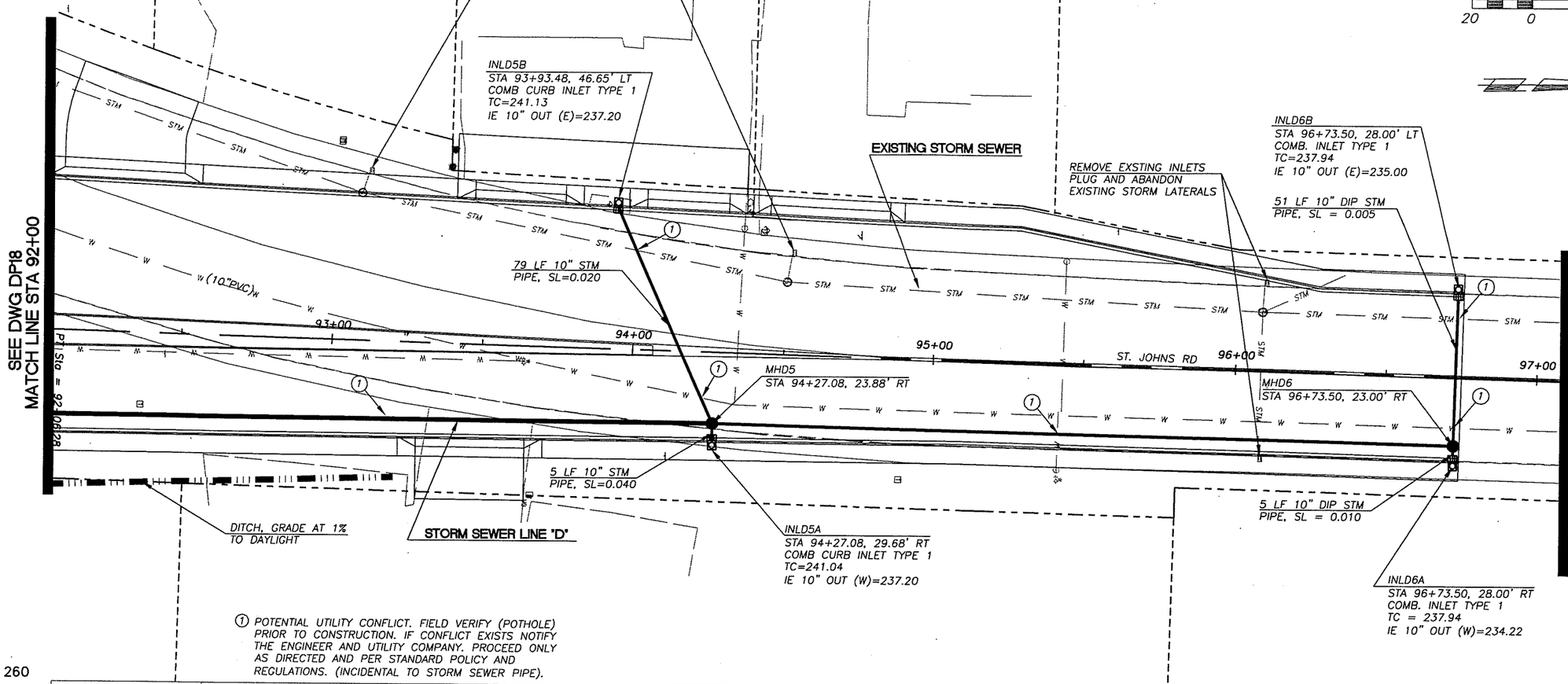

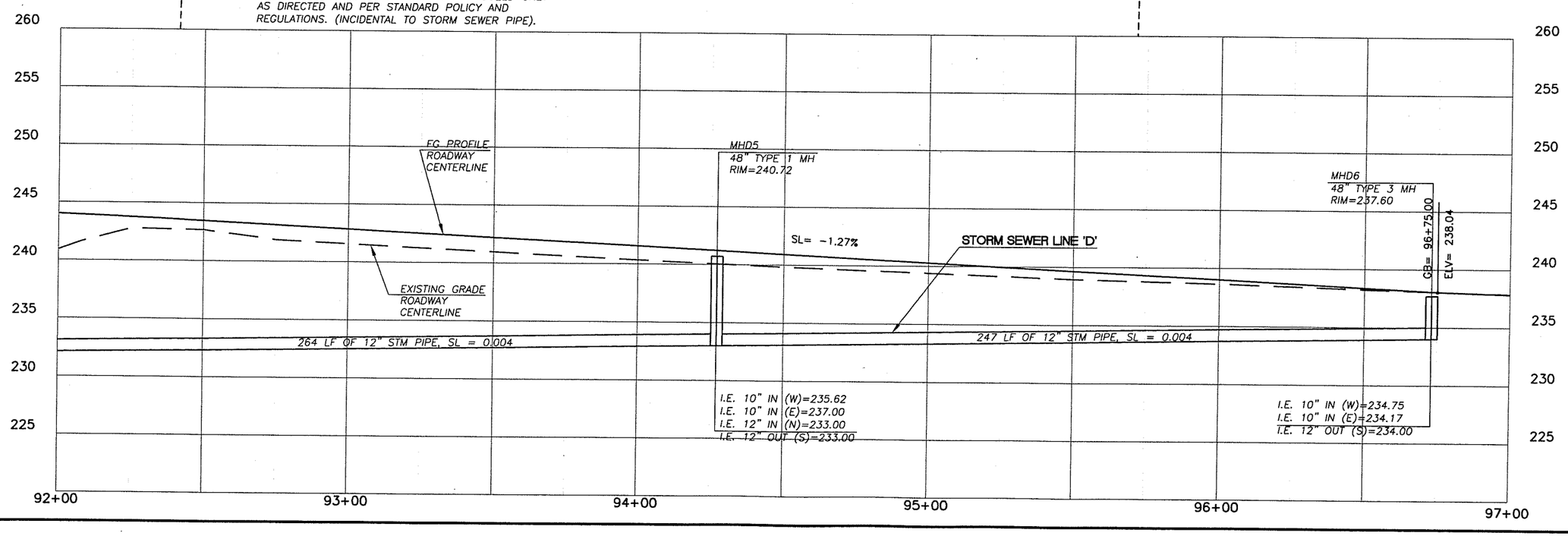

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SHEET 90 OF 151

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STATE OF WASHINGTON
MILLINE
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 72ND AVE (STA 92+00 TO 97+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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PRELIMINARY

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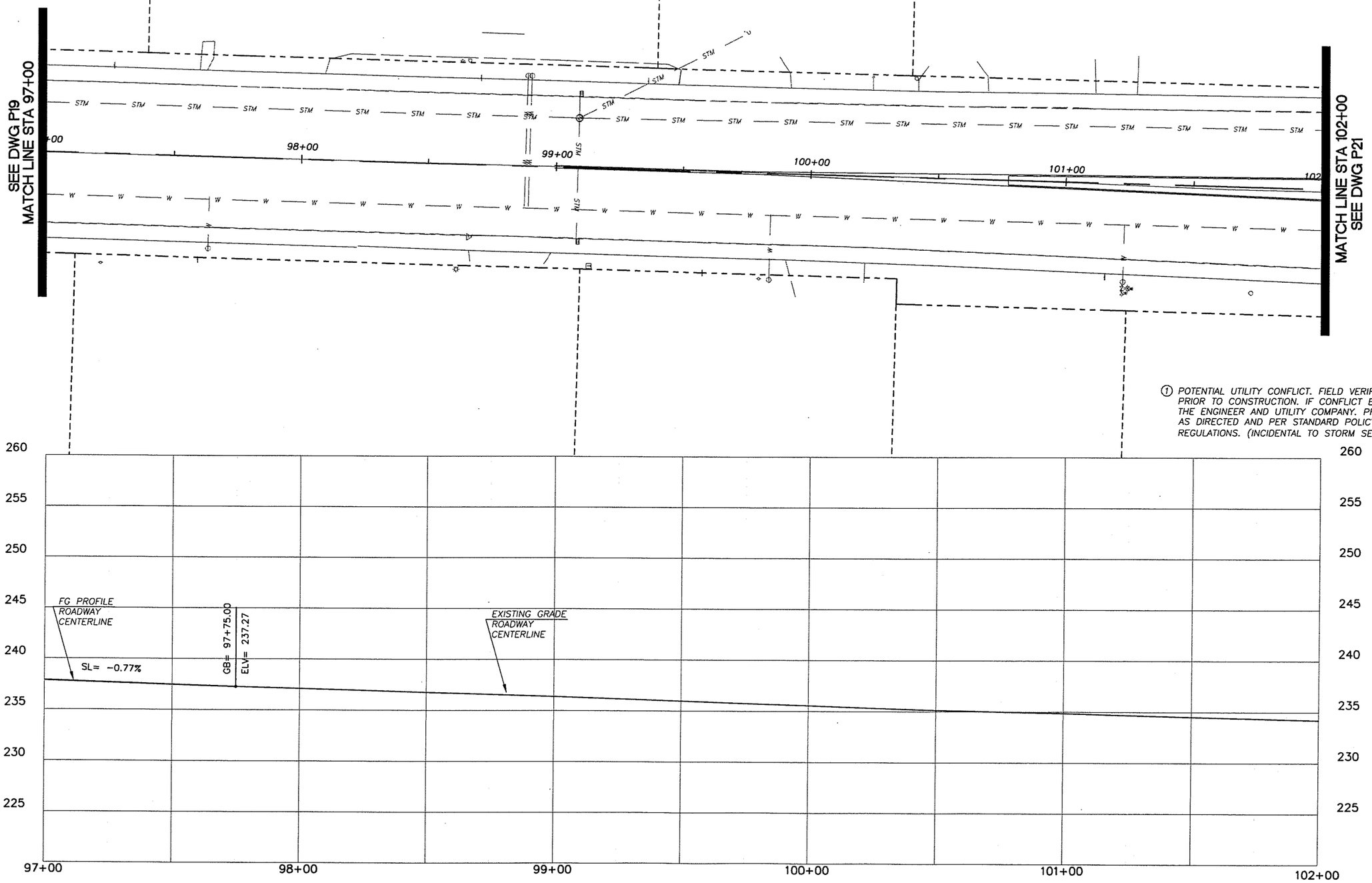
NO DRAINAGE IMPROVEMENTS, THIS SHEET



① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

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CRP	301422
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SHEET	91 OF 151

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STATE OF WASHINGTON
MILLNER
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 2, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 72ND AVE (STA 97+00 TO 102+00)

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CLARK COUNTY
WASHINGTON

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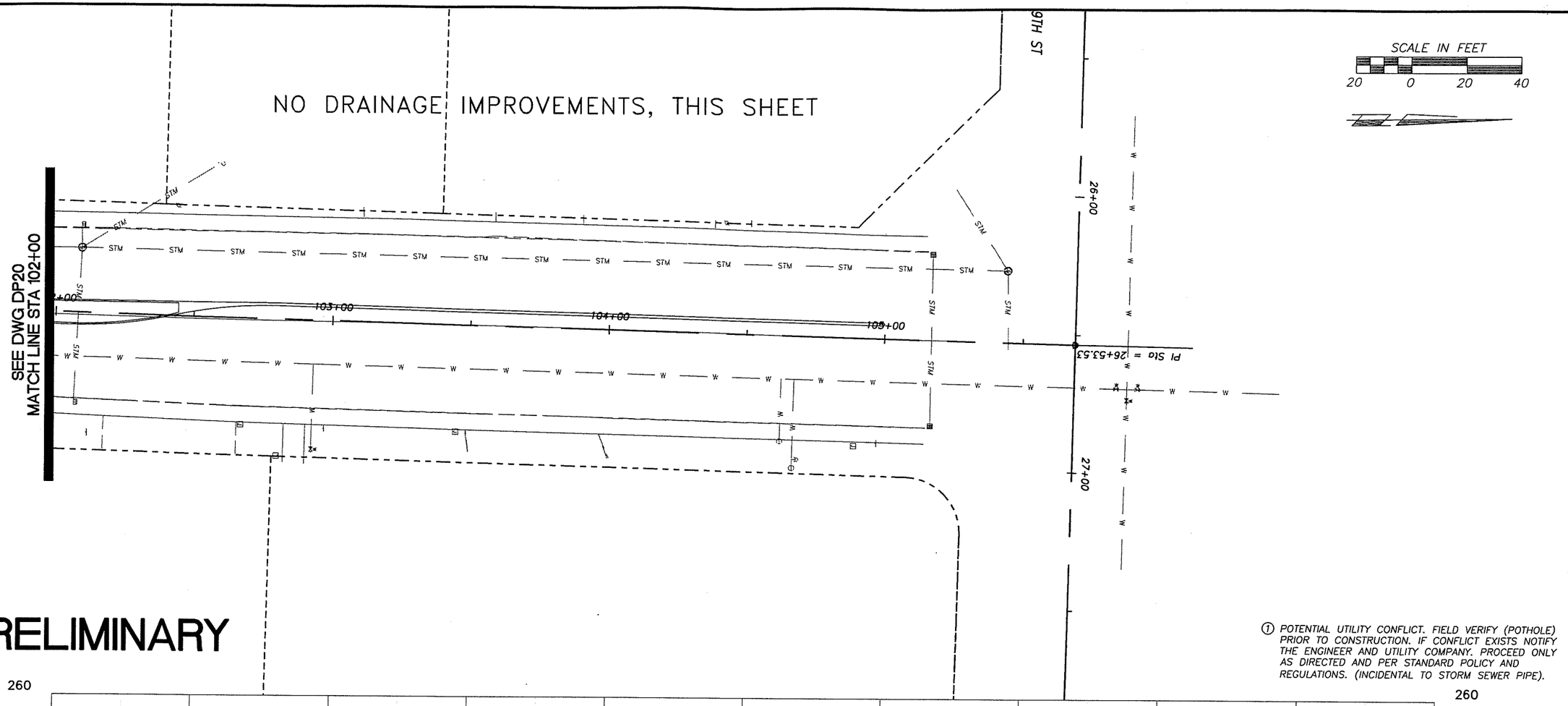

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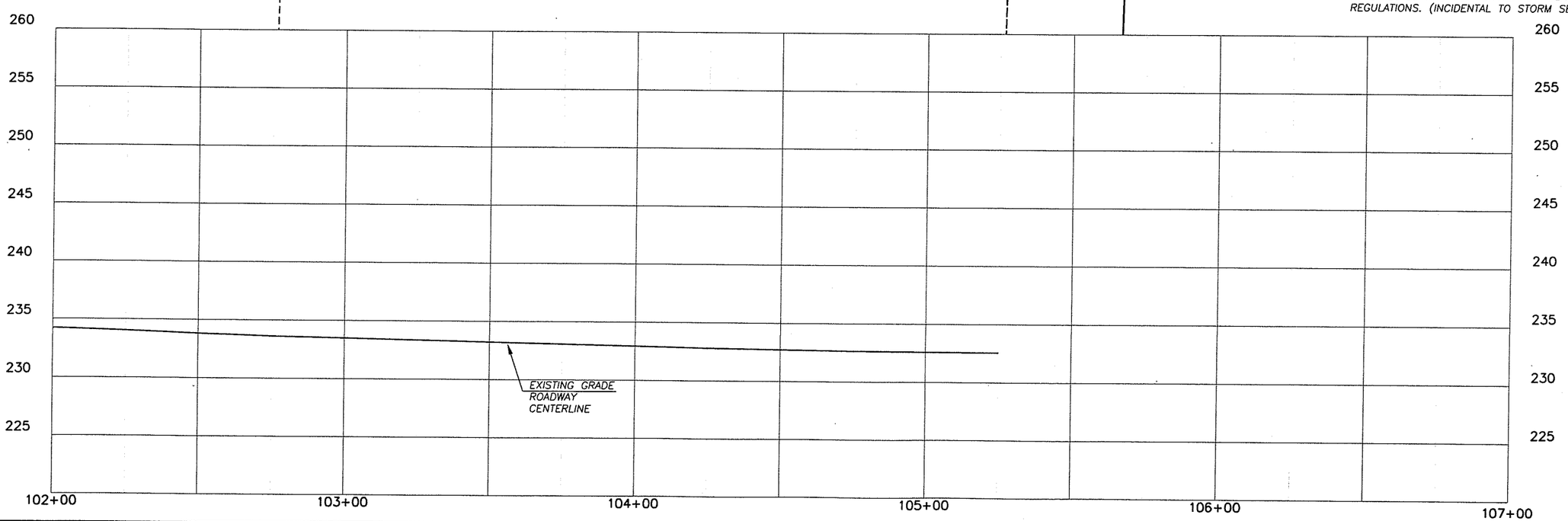
① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).



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DWG: DP21
SHEET 92 OF 151

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STATE OF WASHINGTON
MILAN PROCHAZKA
STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 72ND AVE (STA 102+00 TO E.O.P.)

proud past, promising future
CLARK COUNTY
WASHINGTON

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PRELIMINARY

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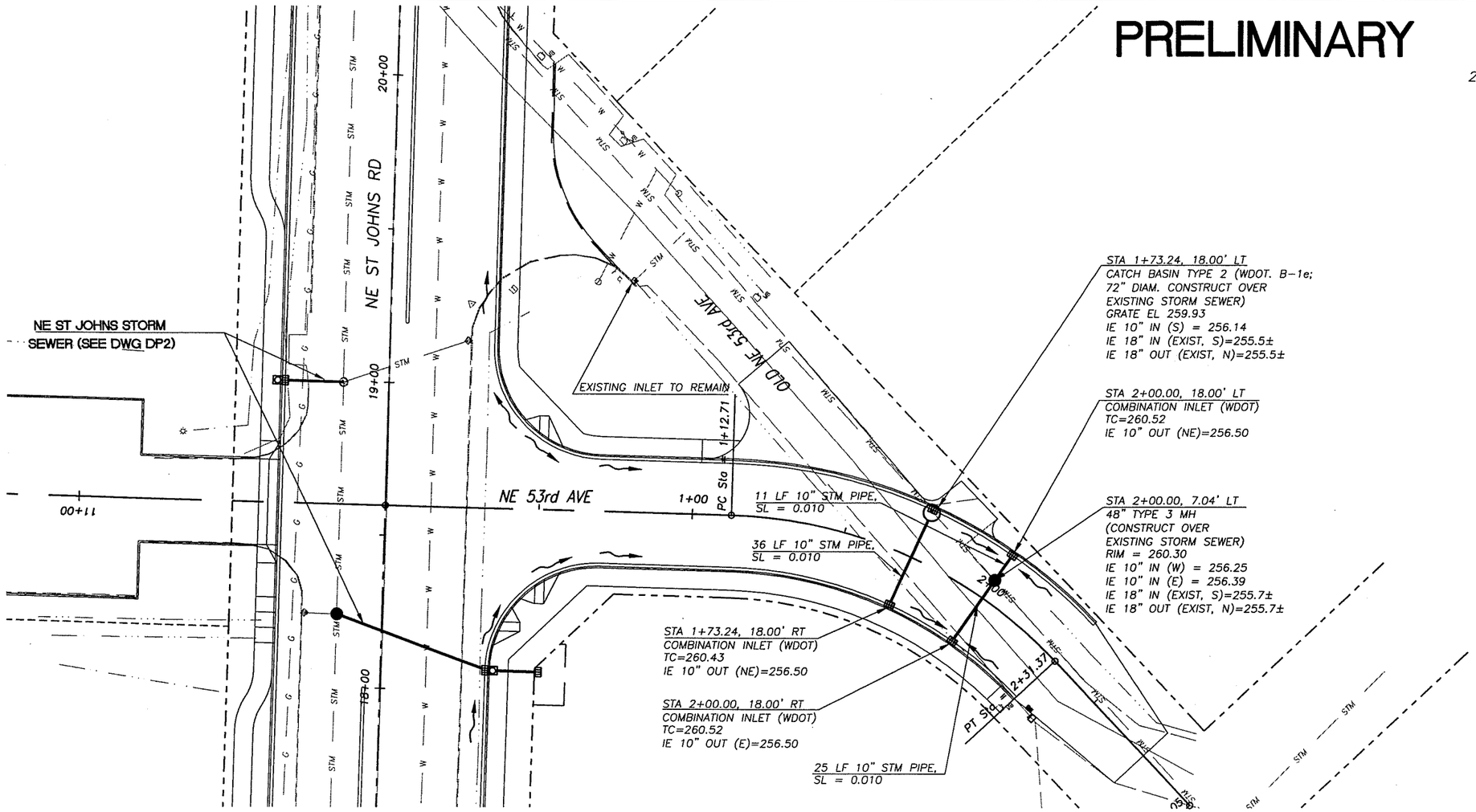

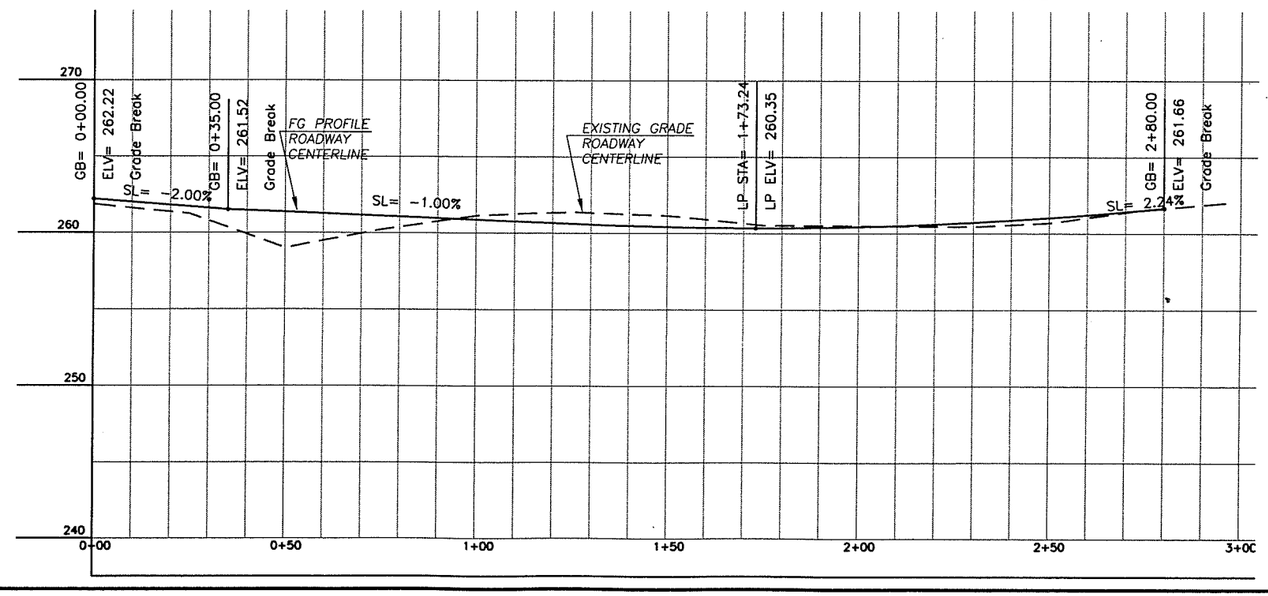

DESIGNED	ME/JM
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CRP	301422
HOR.	SEE SHEET
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DATE	07/31/05
DWG:	DP22
SHEET	93 OF 151

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON SCOTT A. WILLIAMS 31748 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 53RD AVE (STA 0+00 TO 3+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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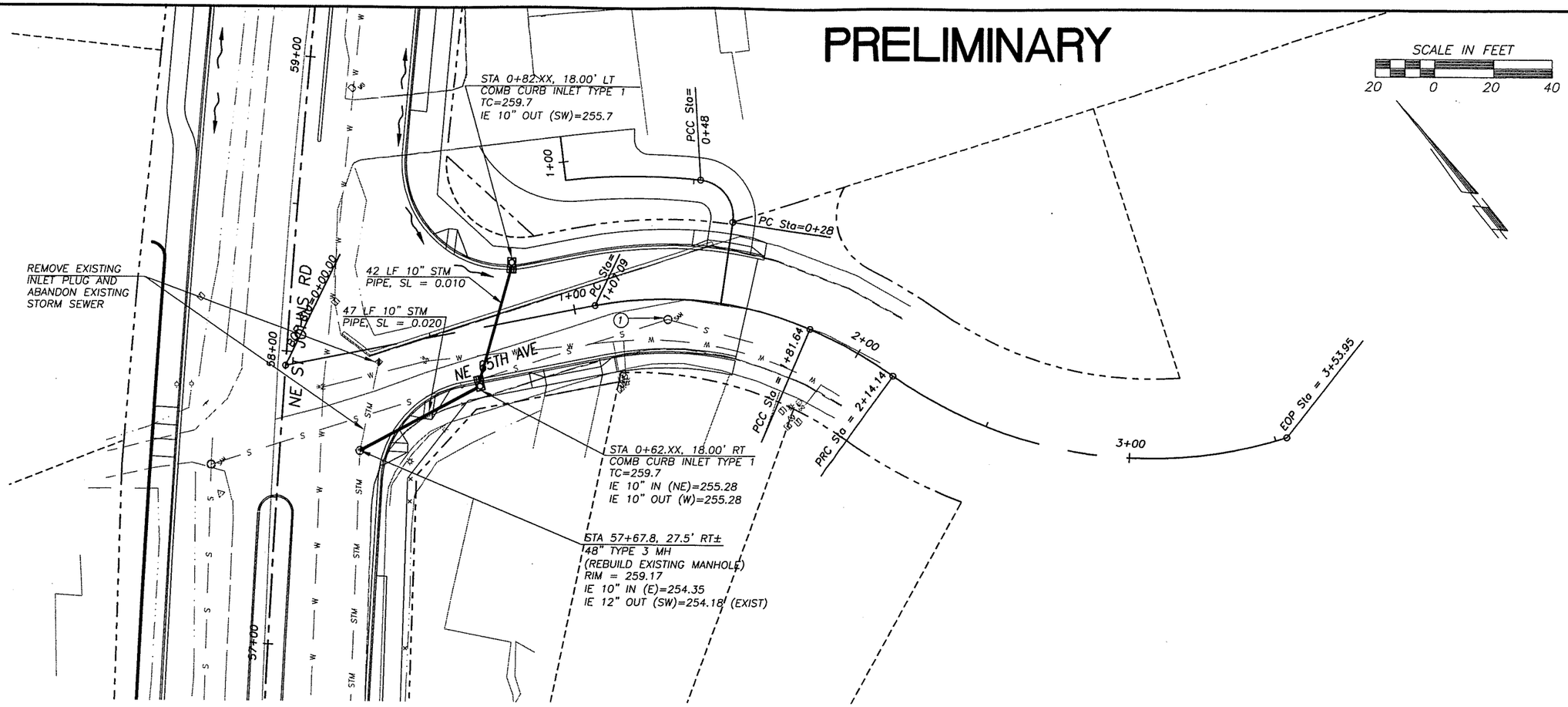
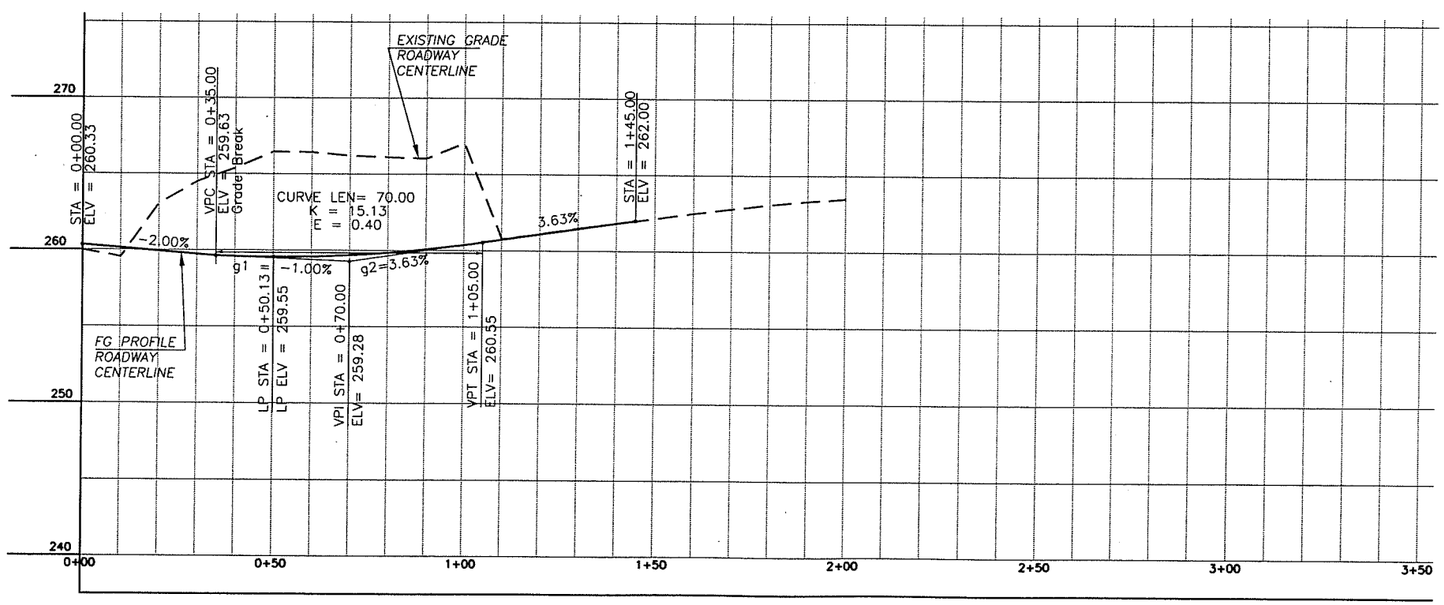
PRELIMINARY





DESIGNED	NE/JM
DRAWN	KB/RK
CRP	301422
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VERT.	SEE SHEET
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DWG:	DP23
SHEET	94 OF 151

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STATE OF WASHINGTON
JOHN WILLIAM HENTGES
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 65TH AVE (STA 0+00 TO 3+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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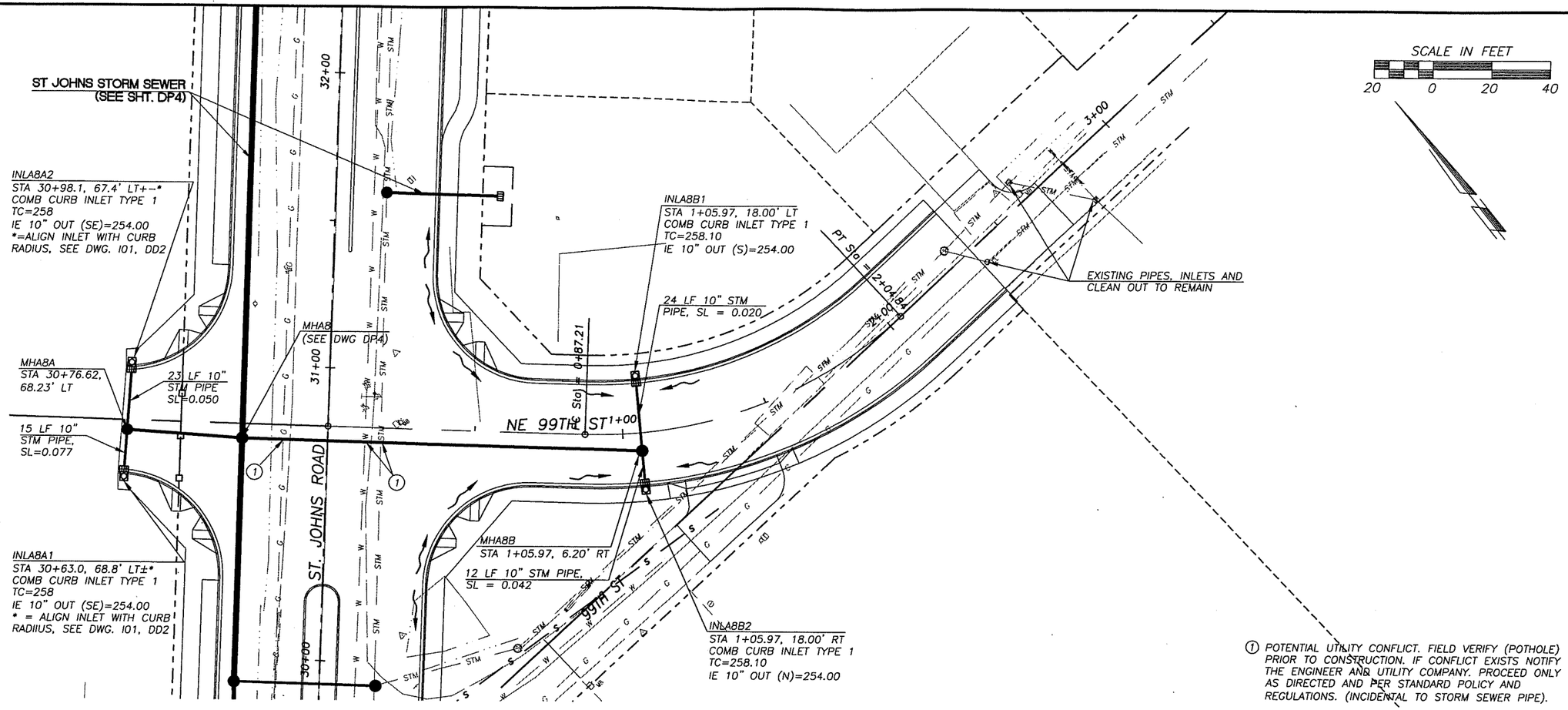
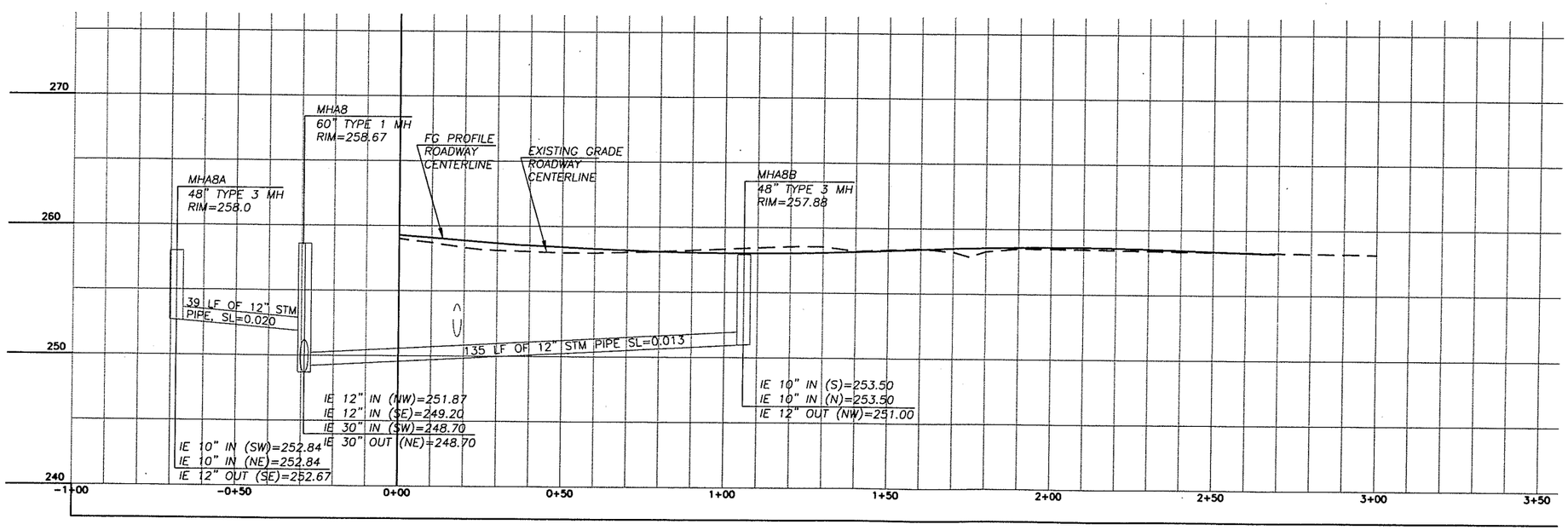


① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).



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CRP 301422
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DWG: DP24
SHEET 95 OF 151

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STATE OF WASHINGTON MICHAEL J. MCCORMICK 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 7, 2007

ENGINEERING PROGRAM DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE) DRAINAGE PLAN 99TH ST (STA 0+00 TO 3+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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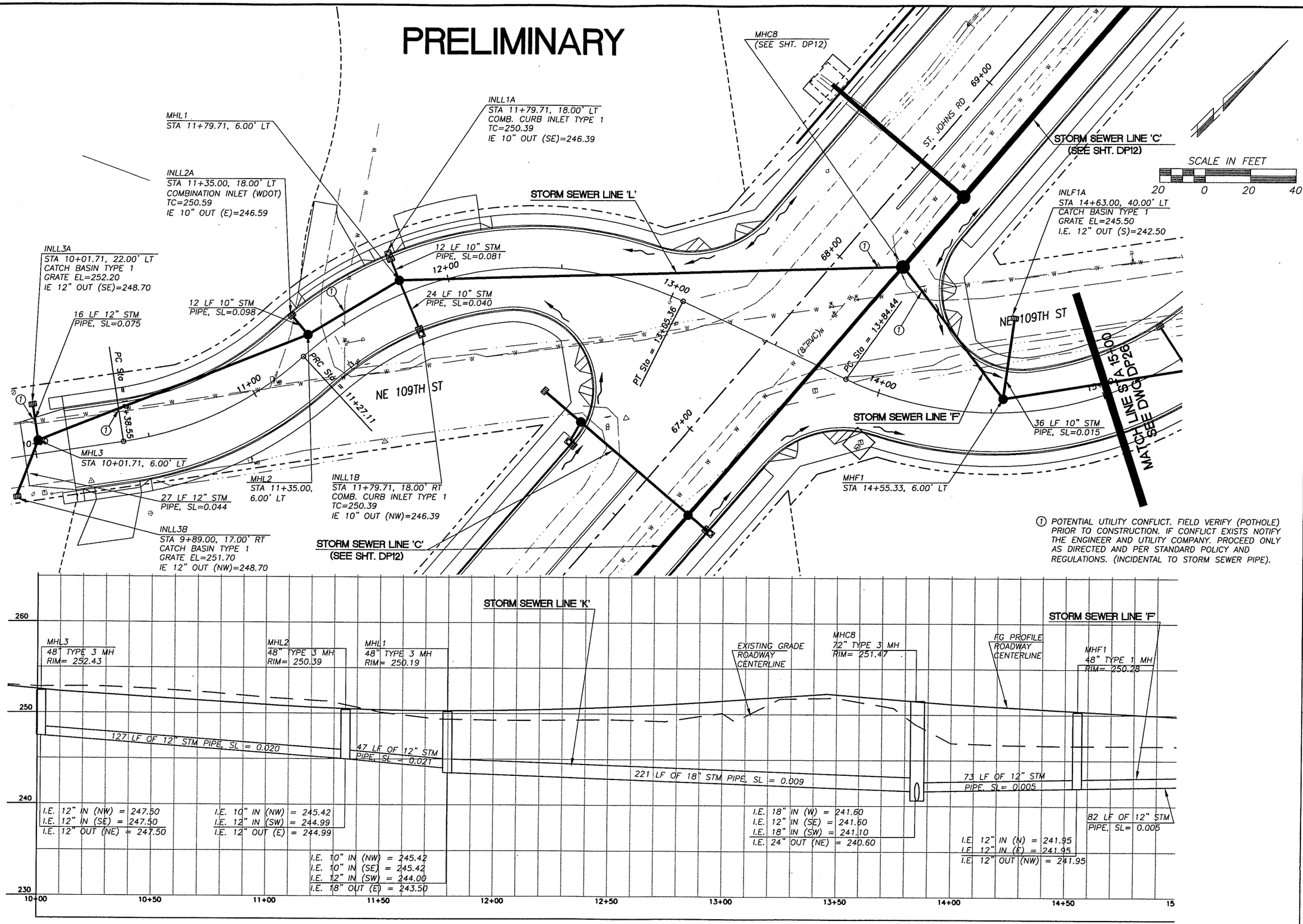
PRELIMINARY



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CRP 301422
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VERT. SEE SHEET
DATE 07/31/05
DWG: DP25
SHEET 96 OF 151

CALL 48 HOURS BEFORE YOU DIG
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STATE OF WASHINGTON
MICHAEL E. KERLINR
PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 109TH ST (STA 10+00 TO 15+00)

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CLARK COUNTY
WASHINGTON

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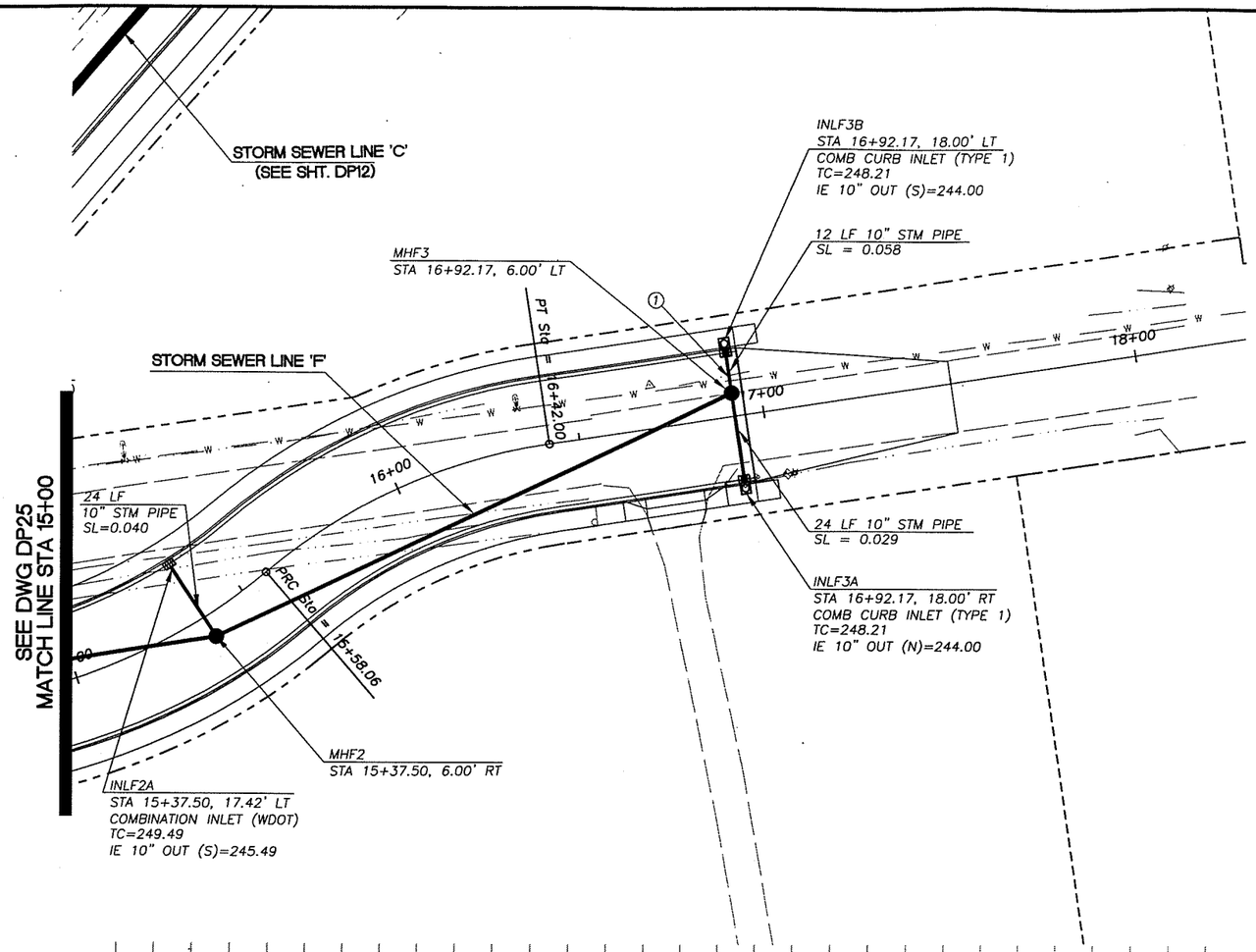
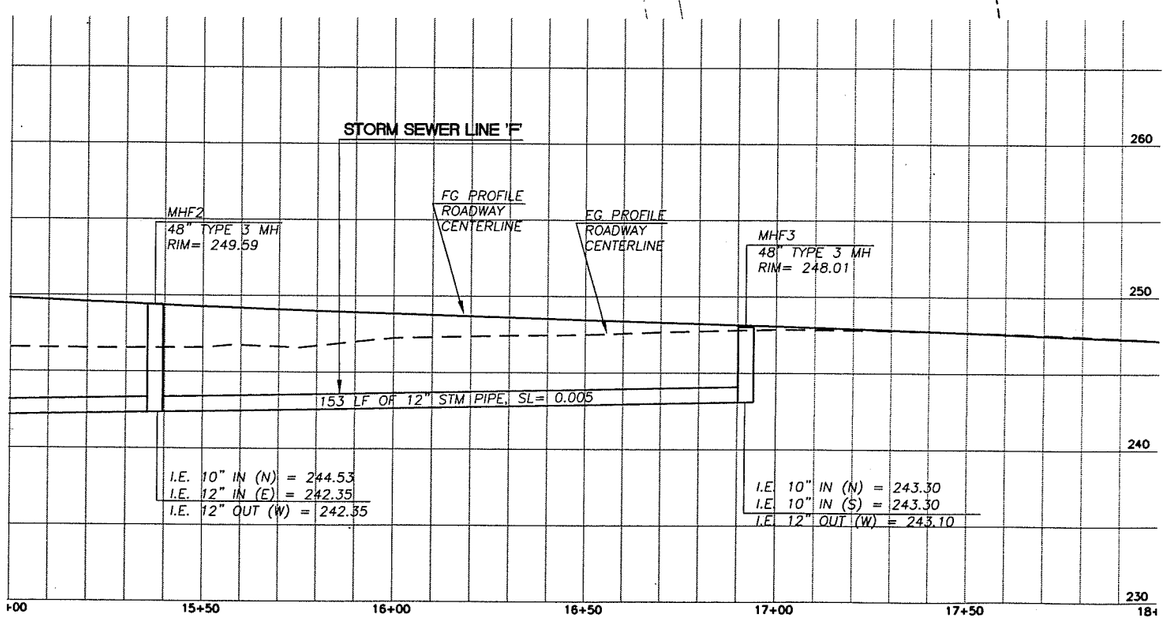
PRELIMINARY





① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

SCALE IN FEET
20 0 20 40

DESIGNED	ME/JM
DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	DP26
SHEET	97 OF 151

CALL 48 HOURS BEFORE YOU DIG
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STATE OF WASHINGTON
WILLIAM JENNINGS
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 109TH ST (STA 15+00 TO 20+00)

proud past, promising future
CLARK COUNTY
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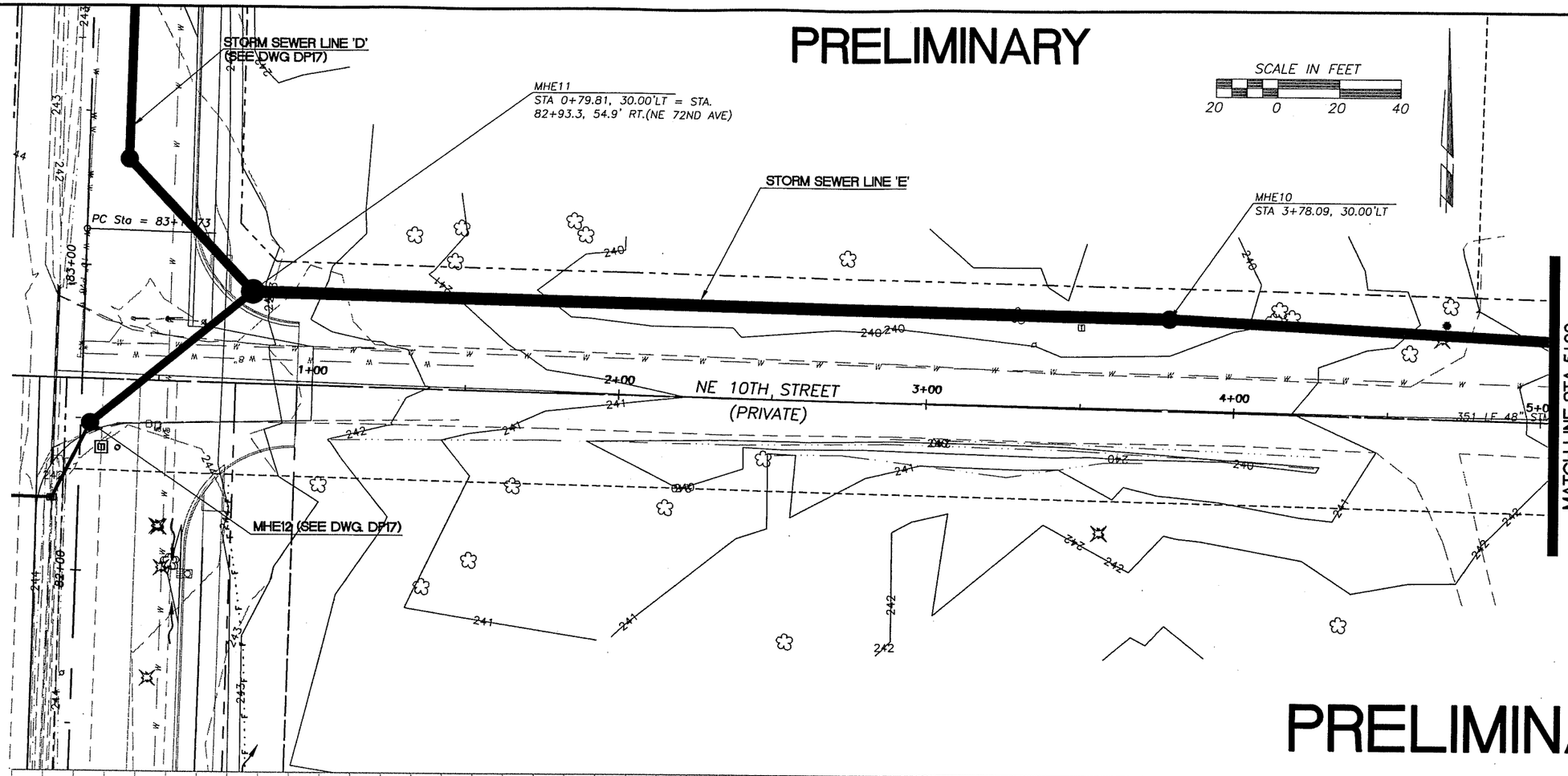

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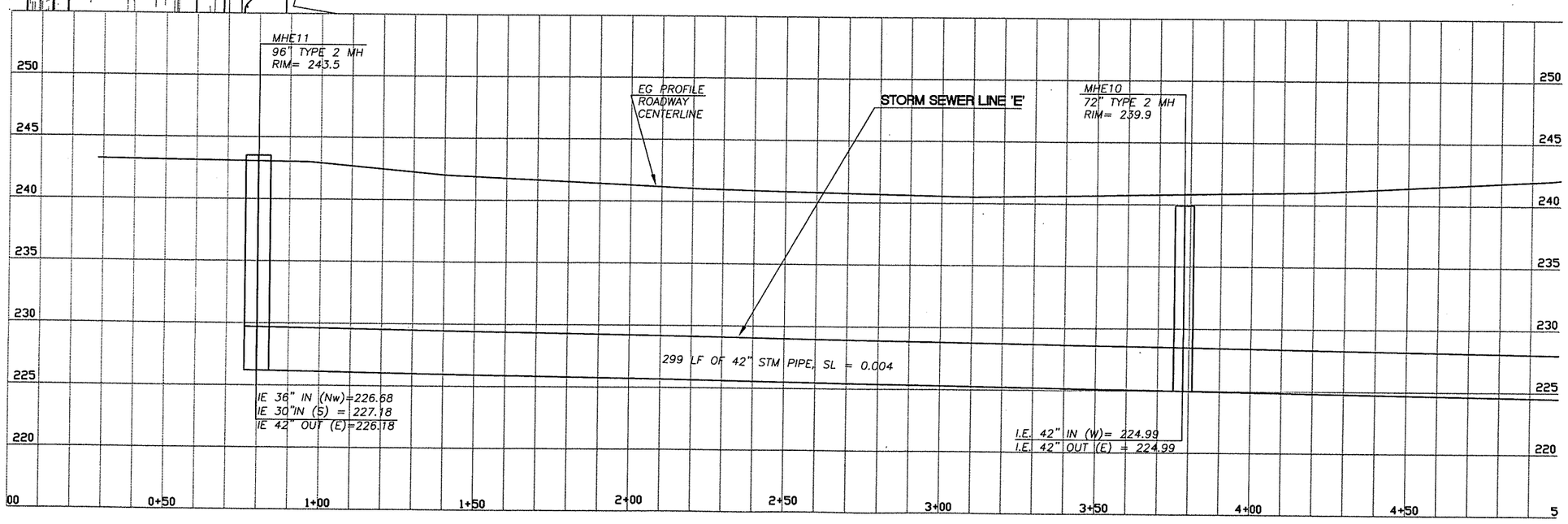

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DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
DRAINAGE PLAN 110TH ST (STA 0+00 TO 5+00)

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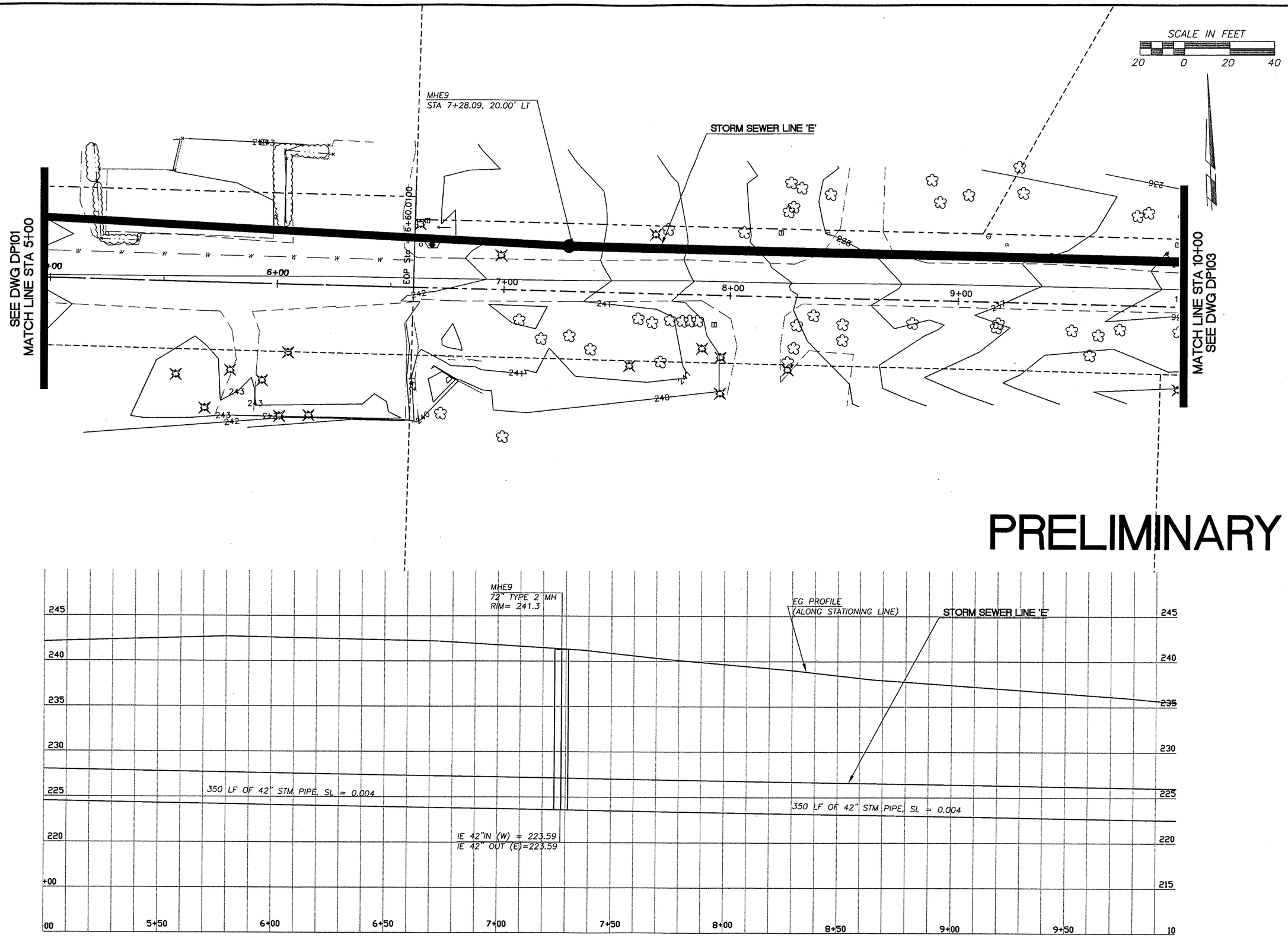

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SHEET 99 OF 151

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21148
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ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
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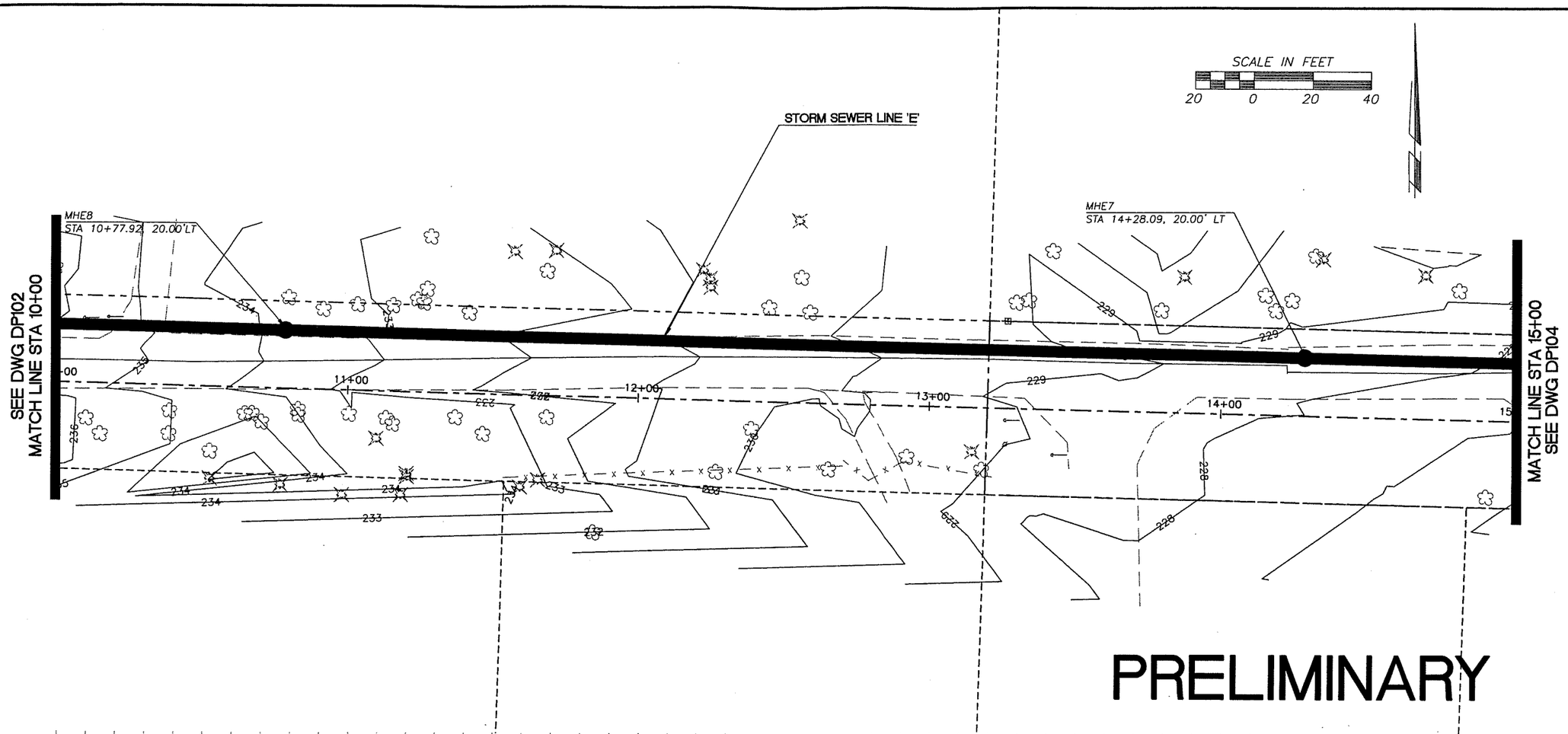

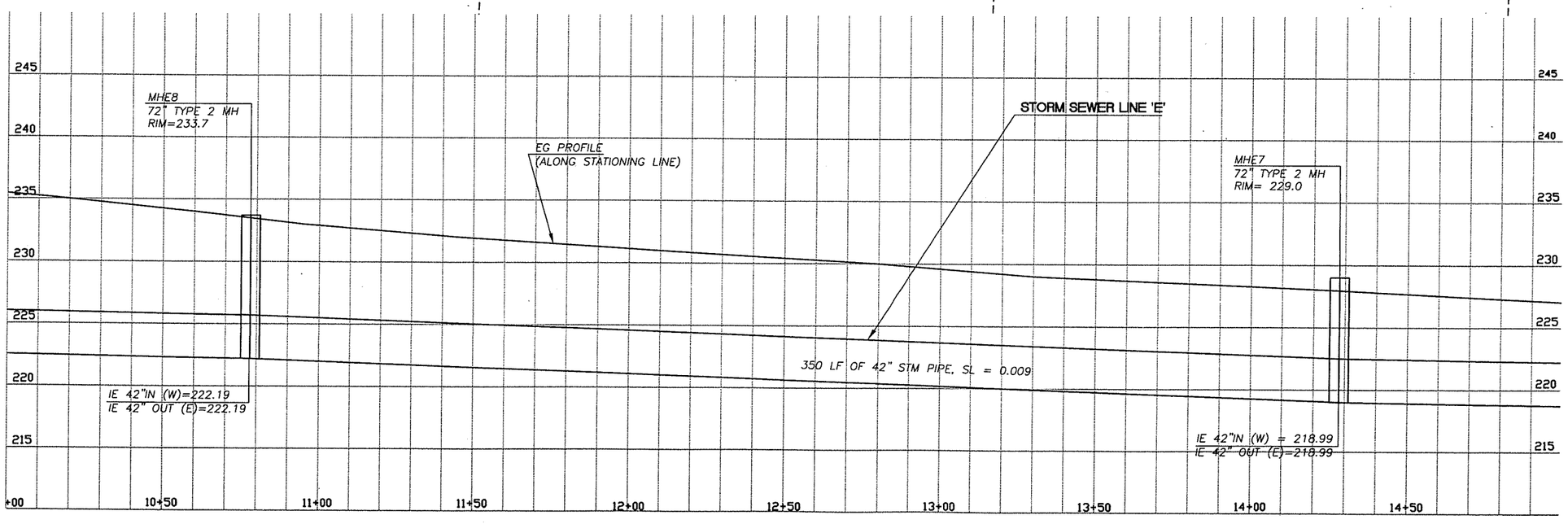

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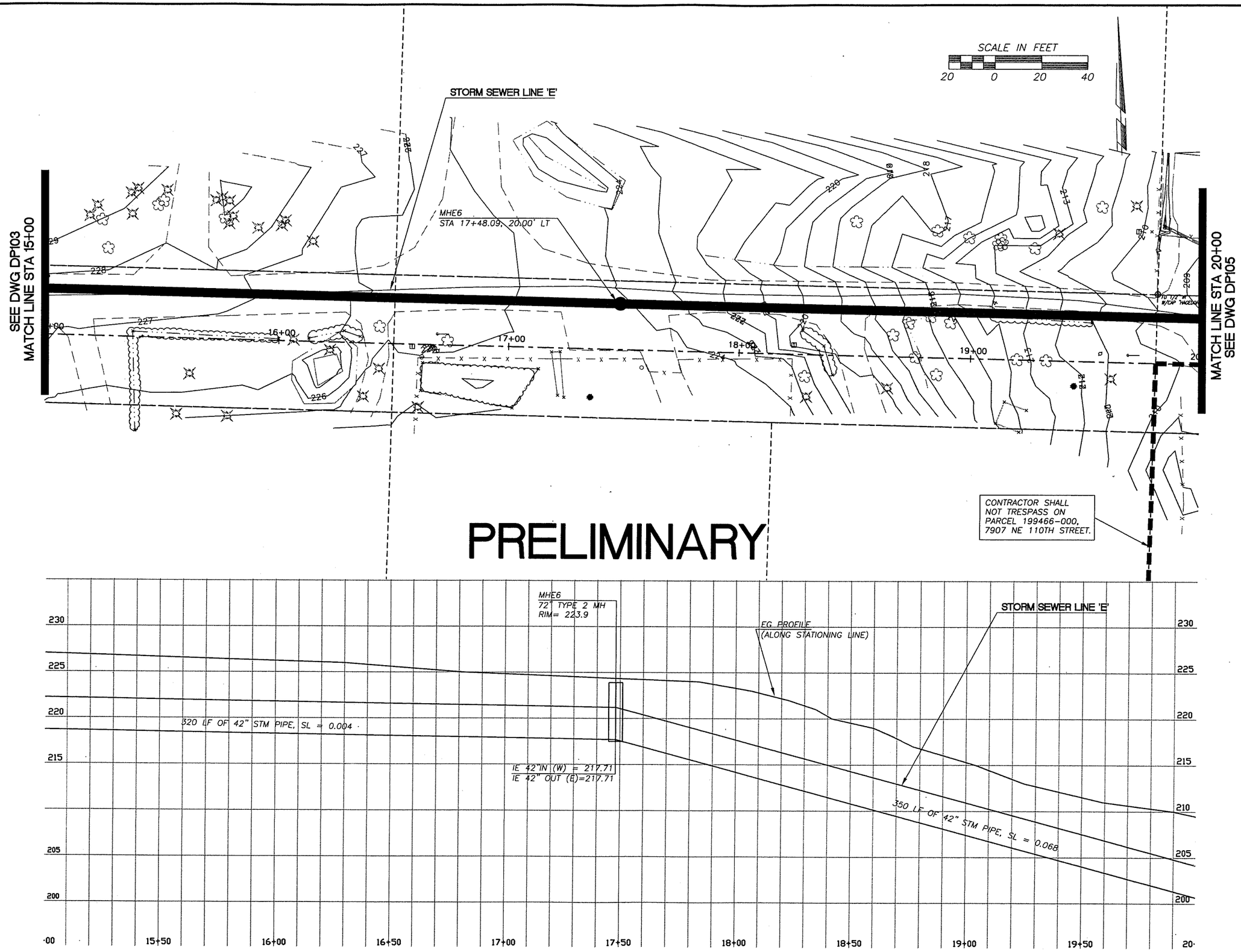

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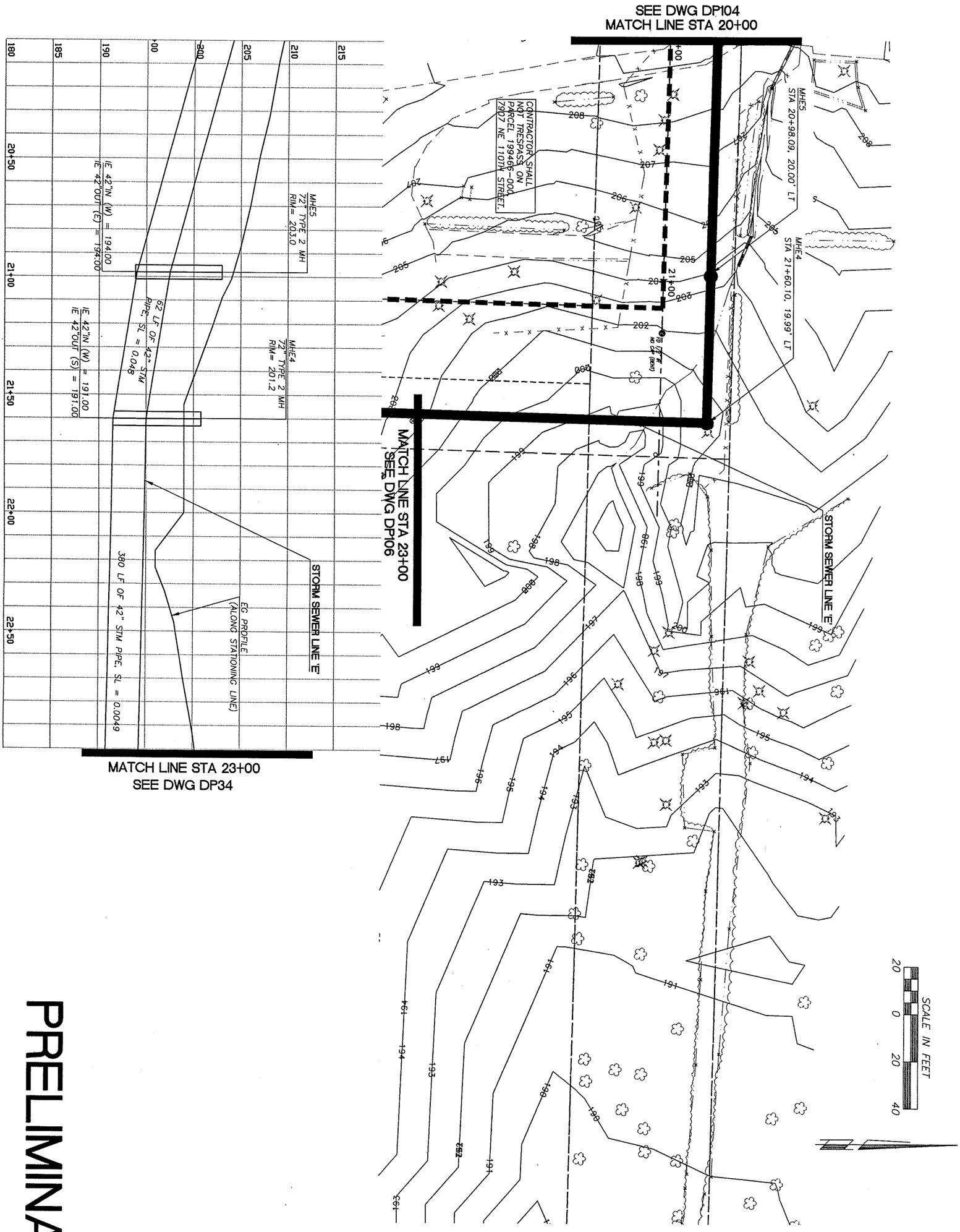

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ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
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JOHN MILNE, STATE OF WASHINGTON, 31145, REGISTERED PROFESSIONAL ENGINEER
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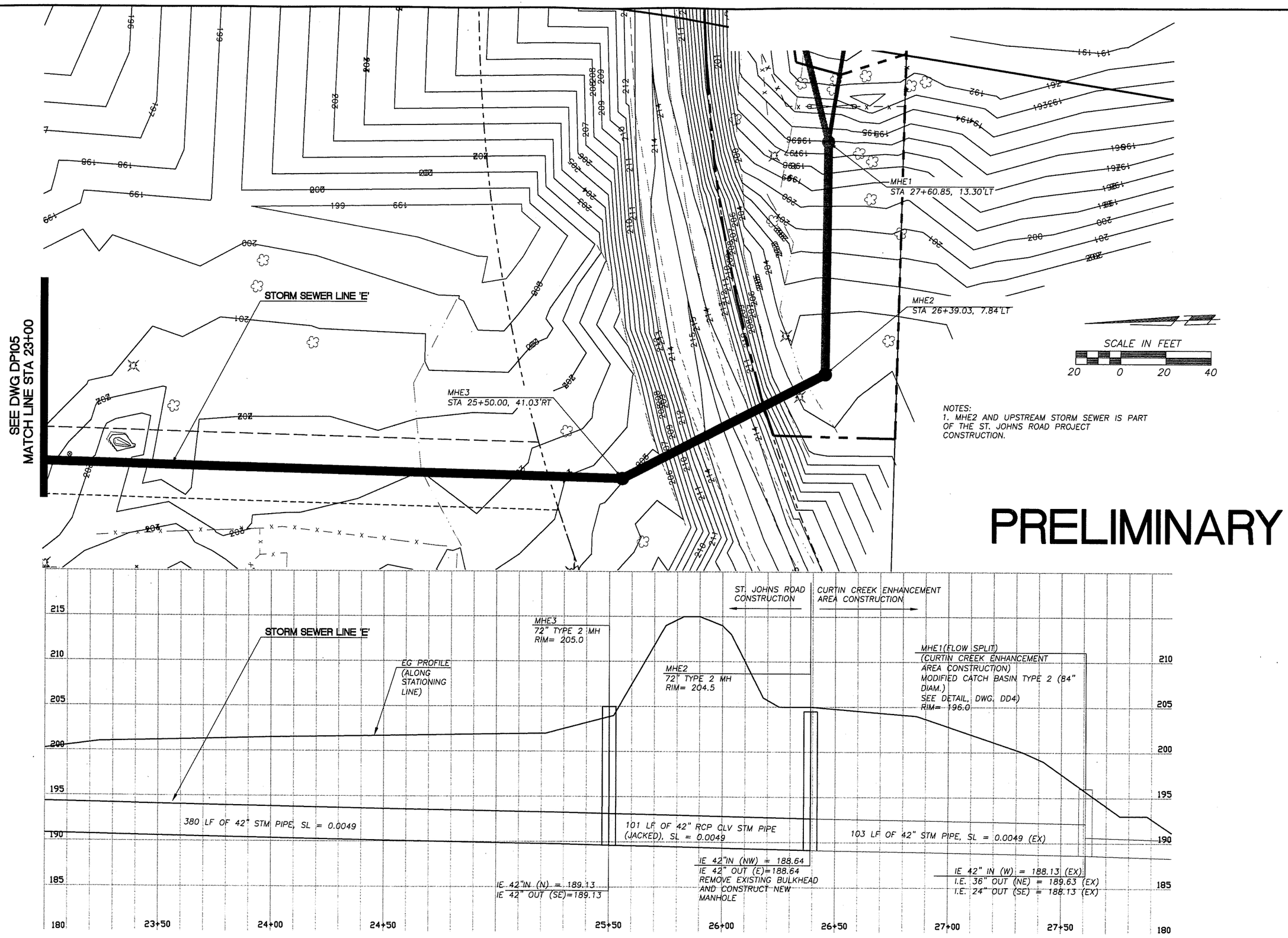

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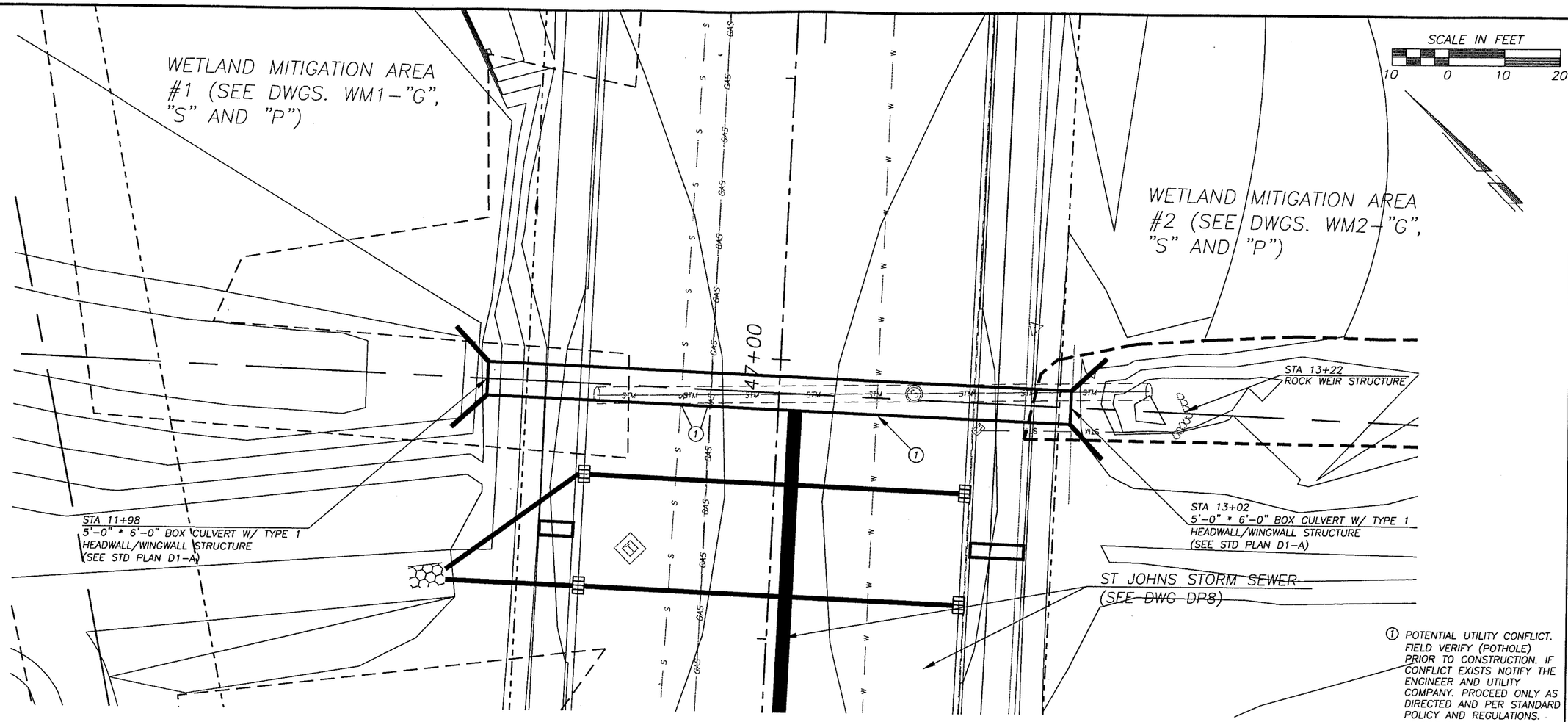
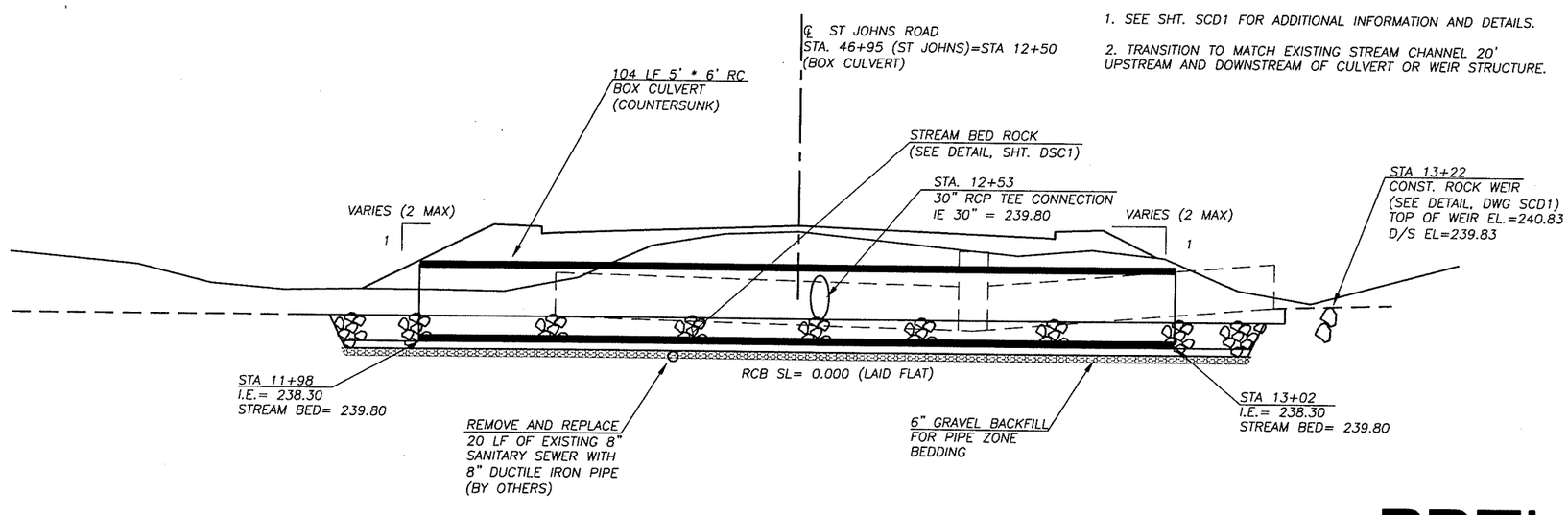


1. SEE SHT. SCD1 FOR ADDITIONAL INFORMATION AND DETAILS.

2. TRANSITION TO MATCH EXISTING STREAM CHANNEL 20' UPSTREAM AND DOWNSTREAM OF CULVERT OR WEIR STRUCTURE.



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DWG:	DP201
SHEET	104 OF 151

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STEVEN M. WASHTON STATE OF WASHINGTON 21148 REGISTERED PROFESSIONAL ENGINEER
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LALONDE CREEK STREAM CROSSING

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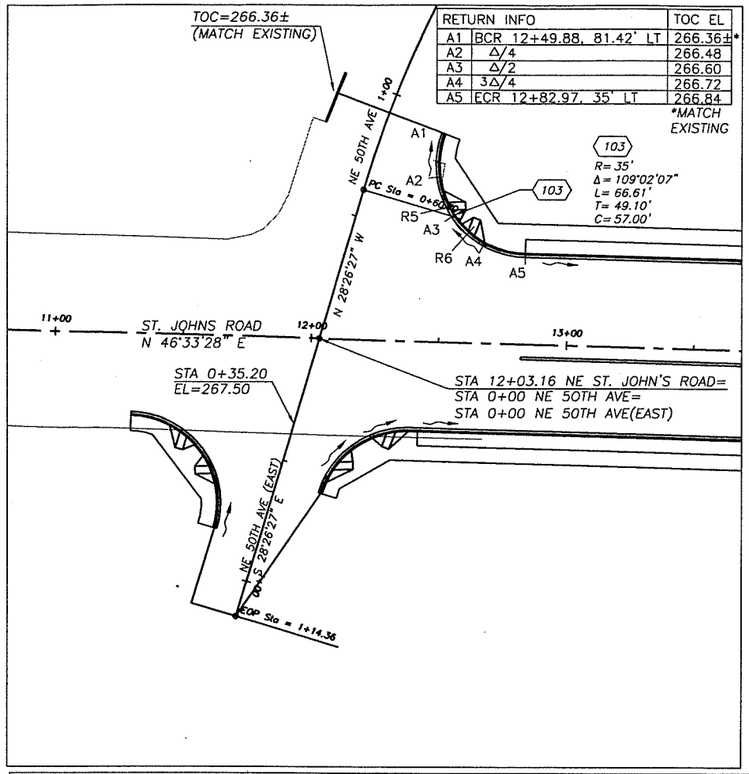
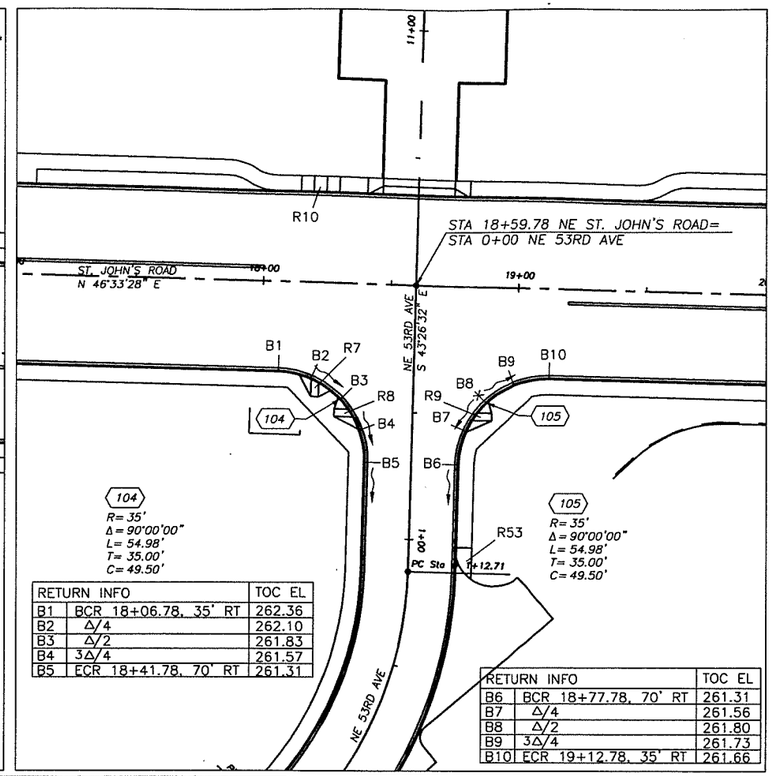


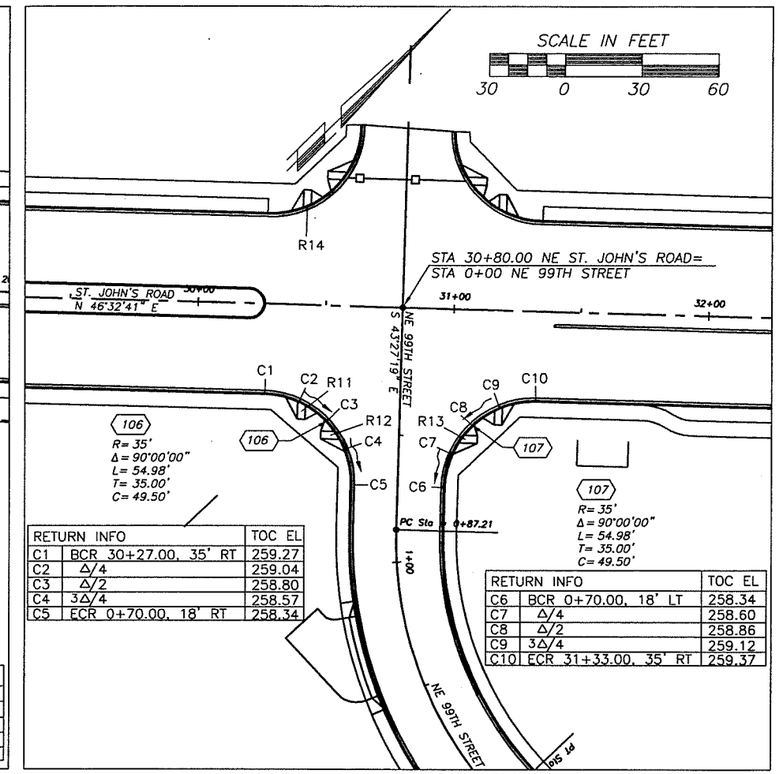
RETURN INFO		TOC EL
A1	BCR 12+49.88, 81.42' LT	266.36±*
A2	Δ/4	266.48
A3	Δ/2	266.60
A4	3Δ/4	266.72
A5	ECR 12+82.97, 35' LT	266.84

*MATCH EXISTING



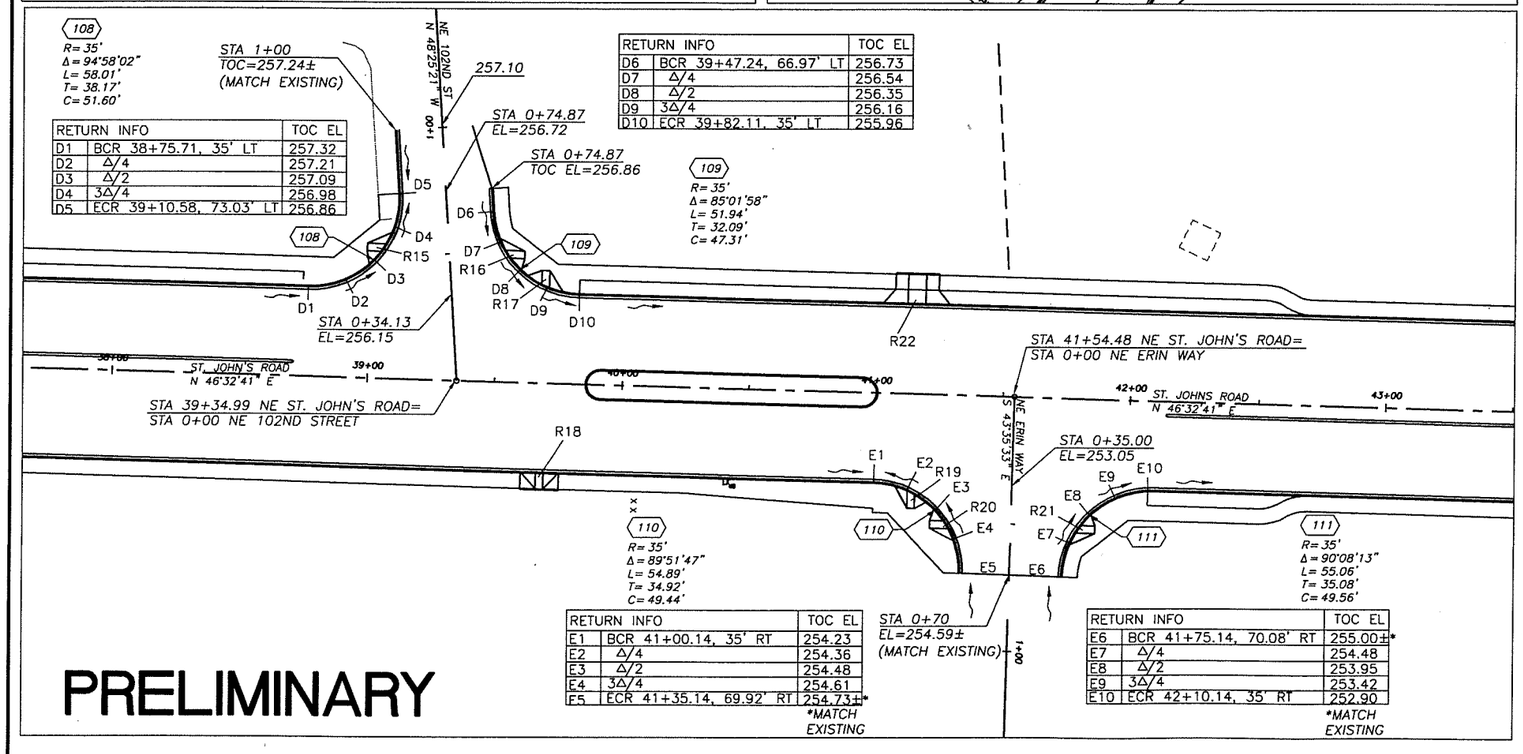
RETURN INFO		TOC EL
B1	BCR 18+06.78, 35' RT	262.36
B2	Δ/4	262.10
B3	Δ/2	261.83
B4	3Δ/4	261.57
B5	ECR 18+41.78, 70' RT	261.31

RETURN INFO		TOC EL
B6	BCR 18+77.78, 70' RT	261.31
B7	Δ/4	261.56
B8	Δ/2	261.80
B9	3Δ/4	261.73
B10	ECR 19+12.78, 35' RT	261.66



RETURN INFO		TOC EL
C1	BCR 30+27.00, 35' RT	259.27
C2	Δ/4	259.04
C3	Δ/2	258.80
C4	3Δ/4	258.57
C5	ECR 0+70.00, 18' RT	258.34

RETURN INFO		TOC EL
C6	BCR 0+70.00, 18' LT	258.34
C7	Δ/4	258.60
C8	Δ/2	258.86
C9	3Δ/4	259.12
C10	ECR 31+33.00, 35' RT	259.37



RETURN INFO		TOC EL
D1	BCR 38+75.71, 35' LT	257.32
D2	Δ/4	257.21
D3	Δ/2	257.09
D4	3Δ/4	256.98
D5	ECR 39+10.58, 73.03' LT	256.86

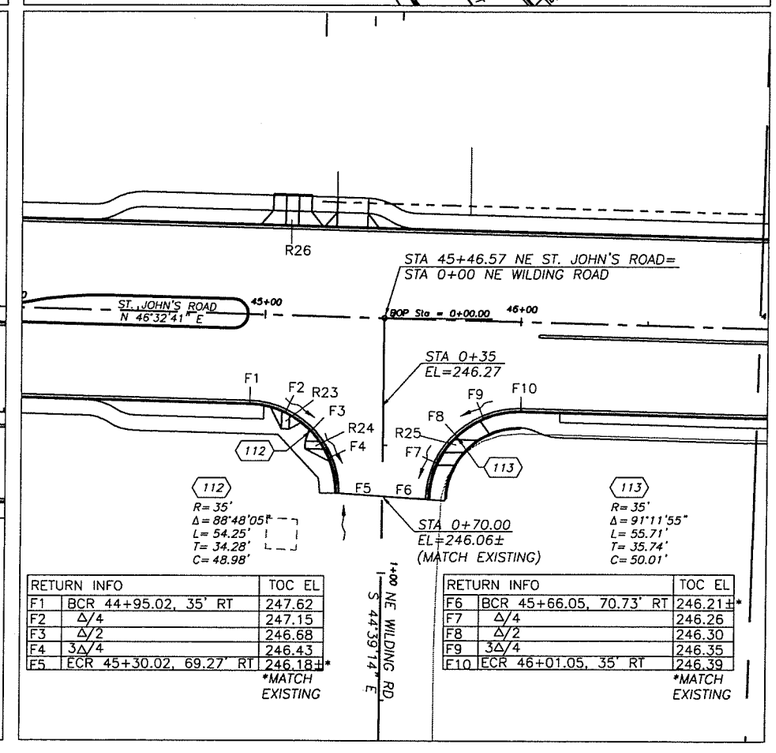
RETURN INFO		TOC EL
D6	BCR 39+47.24, 66.97' LT	256.73
D7	Δ/4	256.54
D8	Δ/2	256.35
D9	3Δ/4	256.16
D10	ECR 39+82.11, 35' LT	255.96

RETURN INFO		TOC EL
E1	BCR 41+00.14, 35' RT	254.23
E2	Δ/4	254.36
E3	Δ/2	254.48
E4	3Δ/4	254.61
E5	ECR 41+35.14, 69.92' RT	254.73±*

*MATCH EXISTING

RETURN INFO		TOC EL
E6	BCR 41+75.14, 70.08' RT	255.00±*
E7	Δ/4	254.48
E8	Δ/2	253.95
E9	3Δ/4	253.42
E10	ECR 42+10.14, 35' RT	252.90

*MATCH EXISTING



RETURN INFO		TOC EL
F1	BCR 44+95.02, 35' RT	247.62
F2	Δ/4	247.15
F3	Δ/2	246.68
F4	3Δ/4	246.43
F5	ECR 45+30.02, 69.27' RT	246.18±*

*MATCH EXISTING

RETURN INFO		TOC EL
F6	BCR 45+66.05, 70.73' RT	246.21±*
F7	Δ/4	246.26
F8	Δ/2	246.30
F9	3Δ/4	246.35
F10	ECR 46+01.05, 35' RT	246.39

*MATCH EXISTING

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ENGINEERING PROGRAM
DESIGN SECTION
ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
INTERSECTION PLAN

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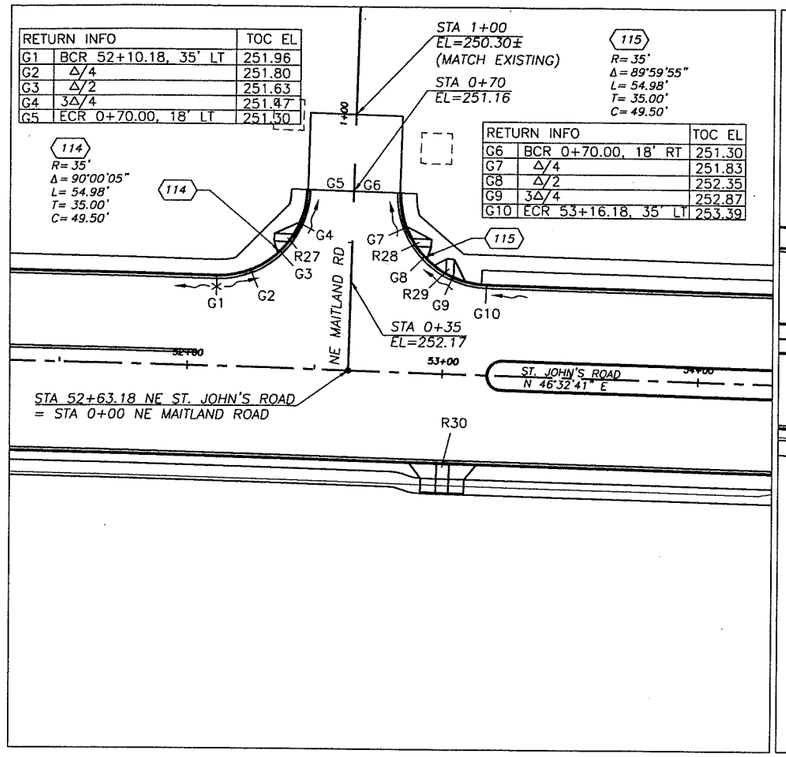
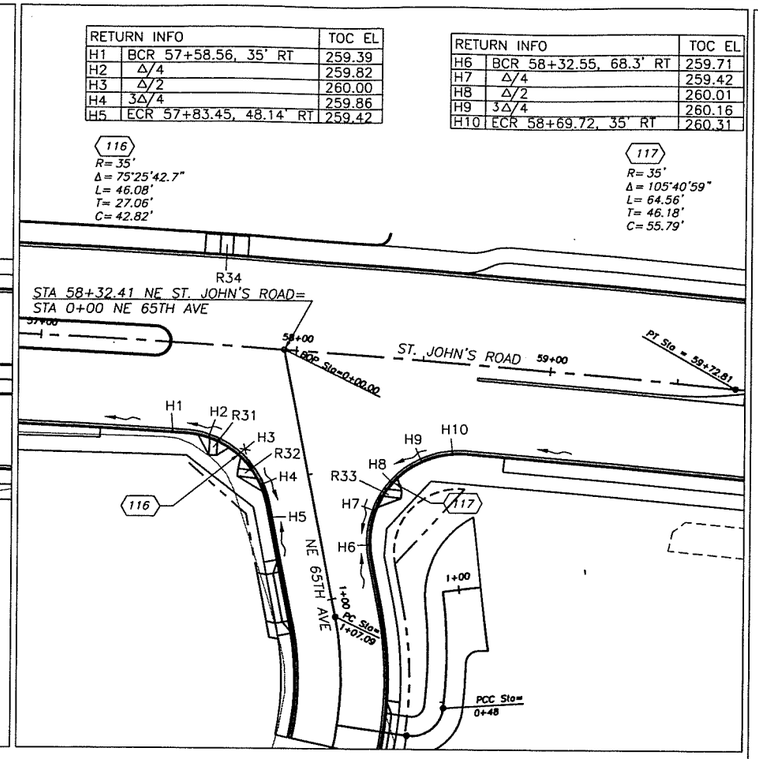


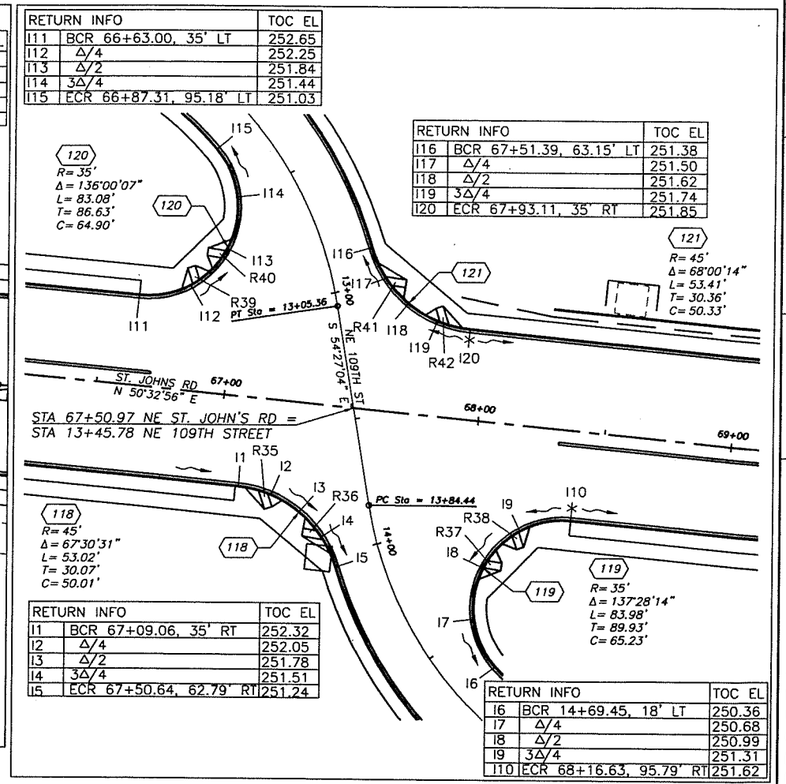
RETURN INFO		TOC EL
G1	BCR 52+10.18, 35' LT	251.96
G2	Δ/4	251.80
G3	Δ/2	251.63
G4	3Δ/4	251.47
G5	ECR 0+70.00, 18' LT	251.30

RETURN INFO		TOC EL
G6	BCR 0+70.00, 18' RT	251.30
G7	Δ/4	251.83
G8	Δ/2	252.35
G9	3Δ/4	252.87
G10	ECR 53+16.18, 35' LT	253.39



RETURN INFO		TOC EL
H1	BCR 57+58.56, 35' RT	259.39
H2	Δ/4	259.82
H3	Δ/2	260.00
H4	3Δ/4	259.86
H5	ECR 57+83.45, 48.14' RT	259.42

RETURN INFO		TOC EL
H6	BCR 58+32.55, 68.3' RT	259.71
H7	Δ/4	259.42
H8	Δ/2	260.01
H9	3Δ/4	260.16
H10	ECR 58+69.72, 35' RT	260.31

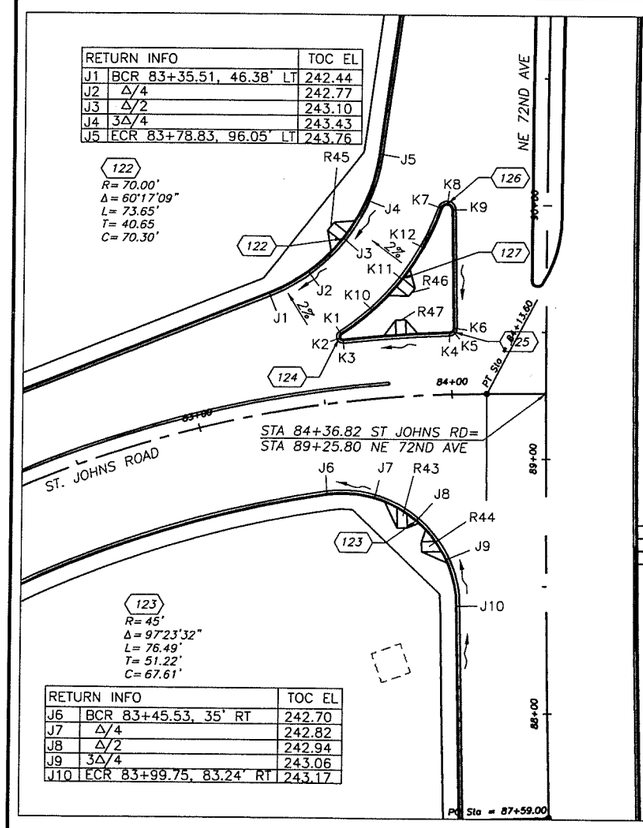


RETURN INFO		TOC EL
I11	BCR 66+63.00, 35' LT	252.65
I12	Δ/4	252.25
I13	Δ/2	251.84
I14	3Δ/4	251.44
I15	ECR 66+87.31, 95.18' LT	251.03

RETURN INFO		TOC EL
I16	BCR 67+51.39, 63.15' LT	251.38
I17	Δ/4	251.50
I18	Δ/2	251.62
I19	3Δ/4	251.74
I20	ECR 67+93.11, 35' RT	251.85

RETURN INFO		TOC EL
I1	BCR 67+09.06, 35' RT	252.32
I2	Δ/4	252.05
I3	Δ/2	251.78
I4	3Δ/4	251.51
I5	ECR 67+50.64, 62.79' RT	251.24

RETURN INFO		TOC EL
I6	BCR 14+69.45, 18' LT	250.36
I7	Δ/4	250.68
I8	Δ/2	250.99
I9	3Δ/4	251.31
I10	ECR 68+16.63, 95.79' RT	251.62



RETURN INFO		TOC EL
J1	BCR 83+35.51, 46.38' LT	242.44
J2	Δ/4	242.77
J3	Δ/2	243.10
J4	3Δ/4	243.43
J5	ECR 83+78.83, 96.05' LT	243.76

RETURN INFO		TOC EL
J6	BCR 83+45.53, 35' RT	242.70
J7	Δ/4	242.82
J8	Δ/2	242.94
J9	3Δ/4	243.06
J10	ECR 83+99.75, 83.24' RT	243.17

RETURN INFO		TOC EL
K1	BCR 83+59.27, 26.84' LT	242.92
K2	2Δ	242.96
K3	ECR 83+59.90, 24' LT	242.99

RETURN INFO		TOC EL
K4	BCR 83+99.69, 24' LT	243.30
K5	2Δ	243.65
K6	ECR 84+01.58, 25.97' LT	243.99

RETURN INFO		TOC EL
K7	BCR 83+97.89, 73.59' LT	244.18
K8	2Δ	244.21
K9	ECR 84+02.08, 72.70' LT	243.99

RETURN INFO		TOC EL
K1	BCR 83+59.27, 26.84' LT	242.92
K10	Δ/4	243.24
K11	Δ/2	243.55
K12	3Δ/4	243.87
K7	ECR 83+97.89, 73.59' LT	244.18

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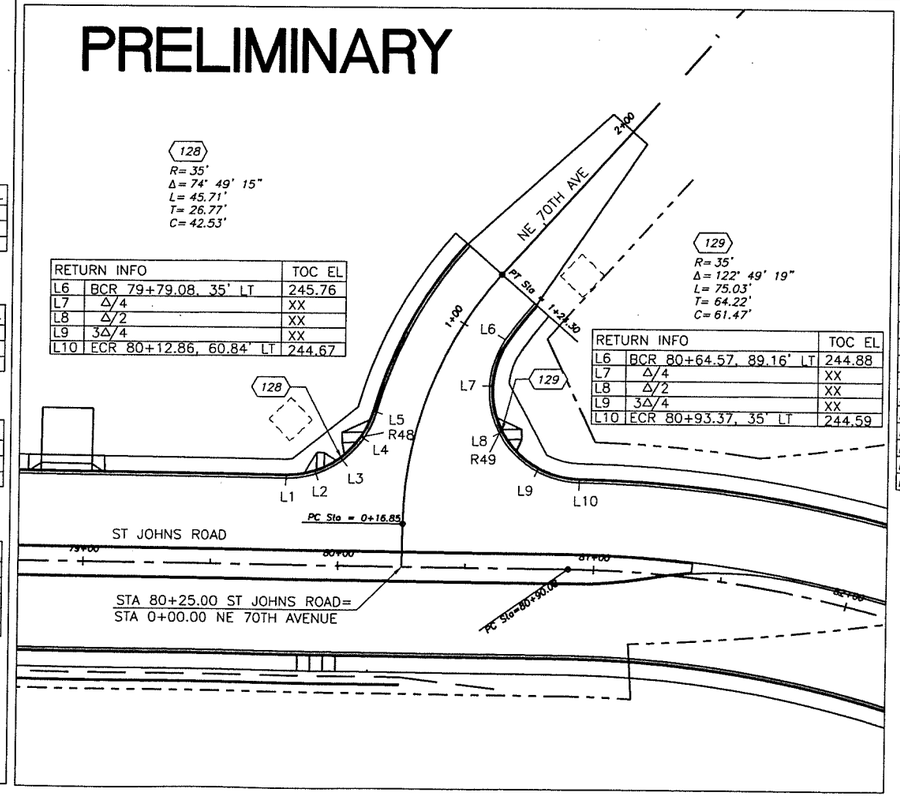

RETURN INFO		TOC EL
L6	BCR 79+79.08, 35' LT	245.76
L7	Δ/4	XX
L8	Δ/2	XX
L9	3Δ/4	XX
L10	ECR 80+12.86, 60.84' LT	244.67

RETURN INFO		TOC EL
L6	BCR 80+64.57, 89.16' LT	244.88
L7	Δ/4	XX
L8	Δ/2	XX
L9	3Δ/4	XX
L10	ECR 80+93.37, 35' LT	244.59

RAMP	TYPE	
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R2	1	
R3	1	
R4	1	
R5	1	
R6	1	
R7	1	
R8	1	
R9	1	
R10	1	
R11	1	
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R17	1	
R18	3	
R19	1	
R20	1	
R21	1	
R22	4	
R23	1	
R24	1	
R25	2	
R26	4	

RAMP	TYPE	
R27	1	
R28	1	
R29	1	
R30	4	
R31	1	
R32	1	
R33	1	
R34	3	
R35	1	
R36	1	
R37	1	
R38	1	
R39	1	
R40	1	
R41	1	
R42	1	
R43	3	
R44	1	
R45	1	
R46	1	
R47	7	(See Sheet PP19)
R48	7	(See Sheet PP19)
R49	7	(See Sheet PP25)

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MICHAEL M. EARWICKER
STATE OF WASHINGTON
29035
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2007

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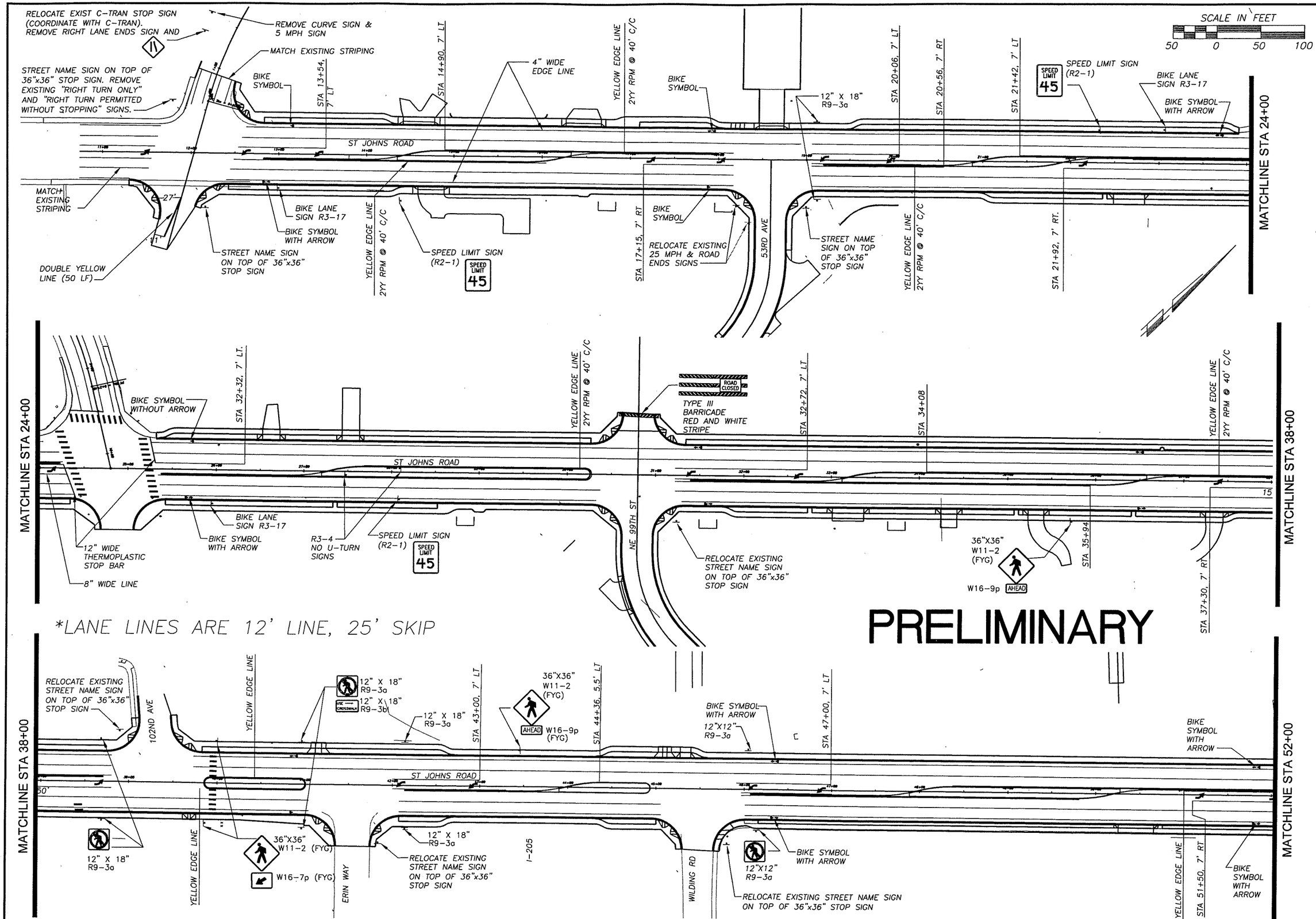

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STEVE KRIANT WASHINGTON 35938 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JAN. 01, 2006

ENGINEERING PROGRAM DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE) SIGNING & STRIPING PLAN

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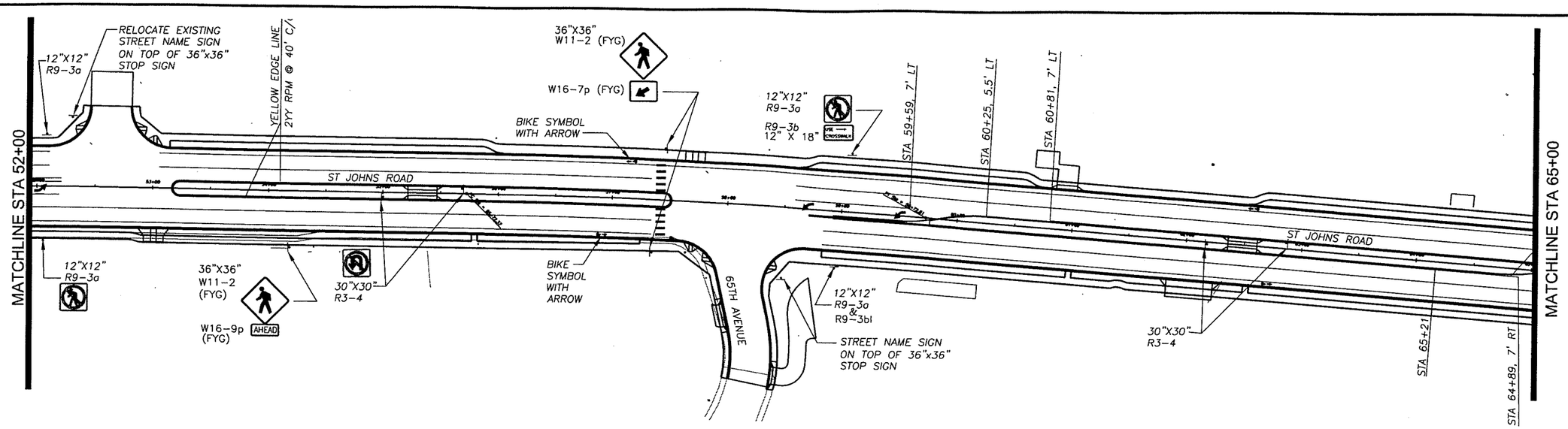

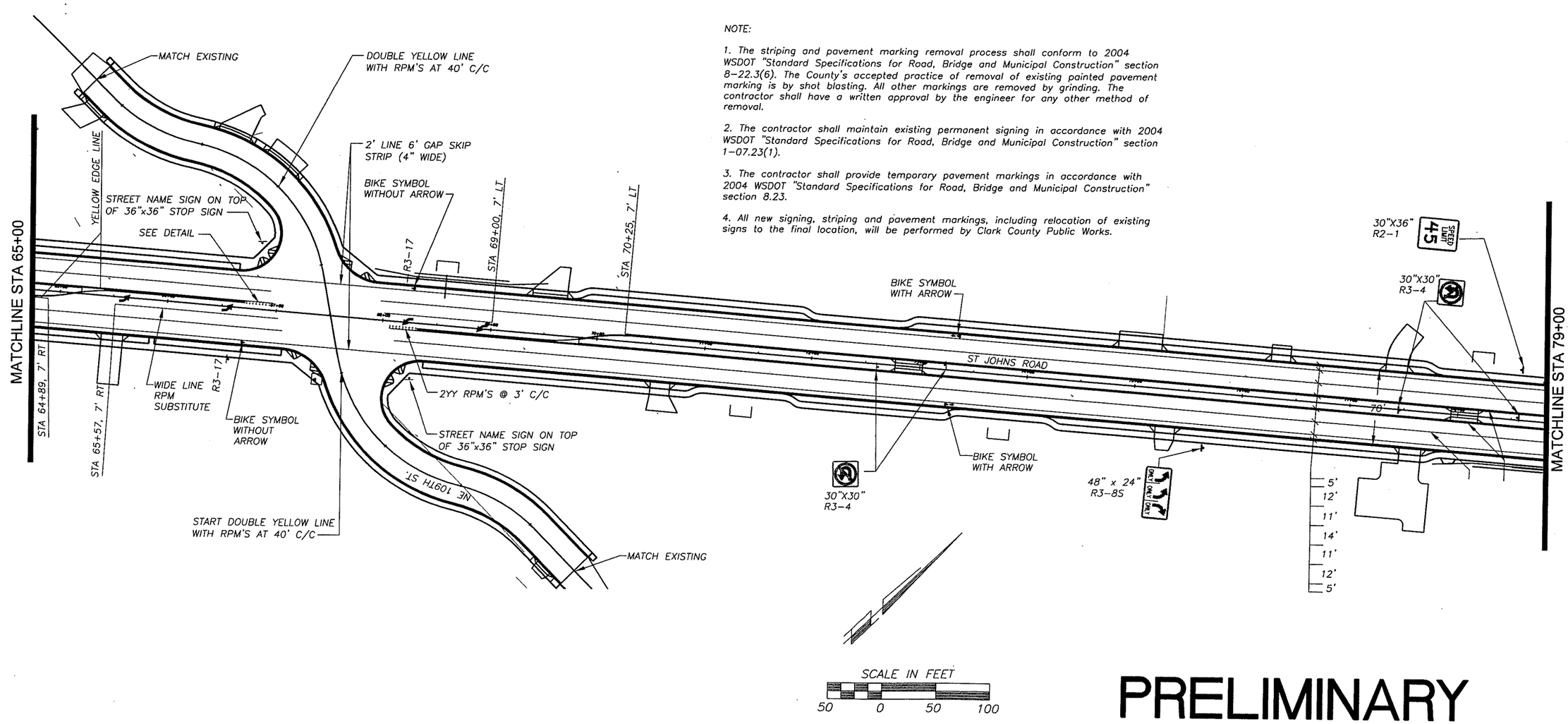

NOTE:

1. The striping and pavement marking removal process shall conform to 2004 WSDOT "Standard Specifications for Road, Bridge and Municipal Construction" section 8-22.3(6). The County's accepted practice of removal of existing painted pavement marking is by shot blasting. All other markings are removed by grinding. The contractor shall have a written approval by the engineer for any other method of removal.

2. The contractor shall maintain existing permanent signing in accordance with 2004 WSDOT "Standard Specifications for Road, Bridge and Municipal Construction" section 1-07.23(1).

3. The contractor shall provide temporary pavement markings in accordance with 2004 WSDOT "Standard Specifications for Road, Bridge and Municipal Construction" section 8.23.

4. All new signing, striping and pavement markings, including relocation of existing signs to the final location, will be performed by Clark County Public Works.

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DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
SIGNING & STRIPING PLAN

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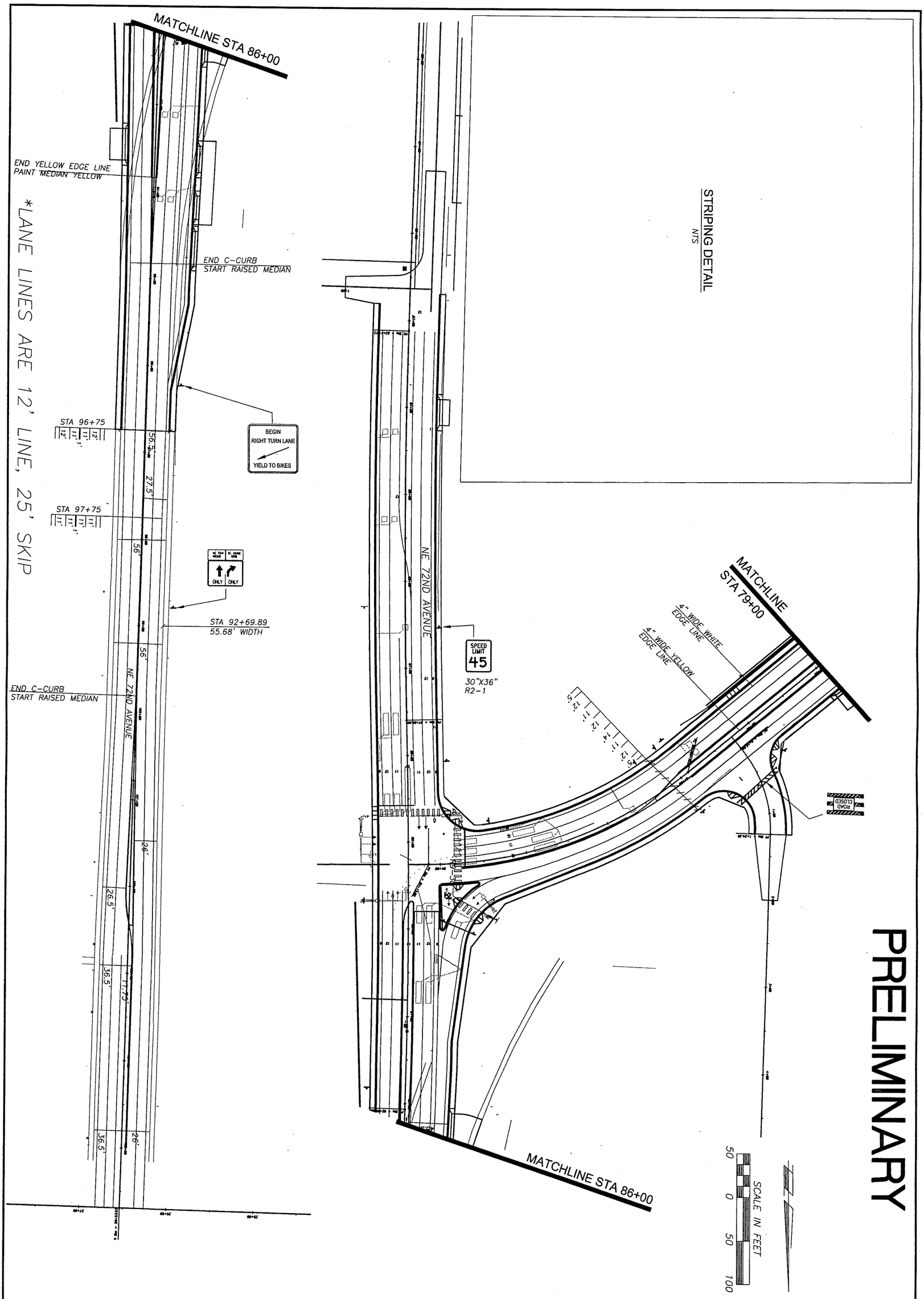

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ENGINEERING PROGRAM
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ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
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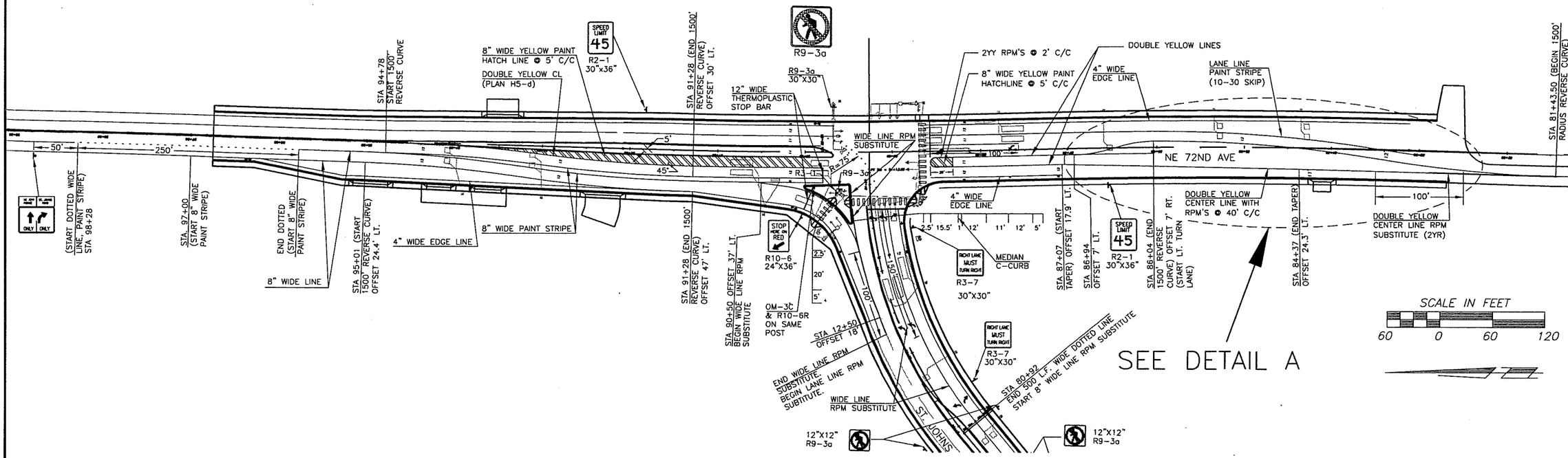

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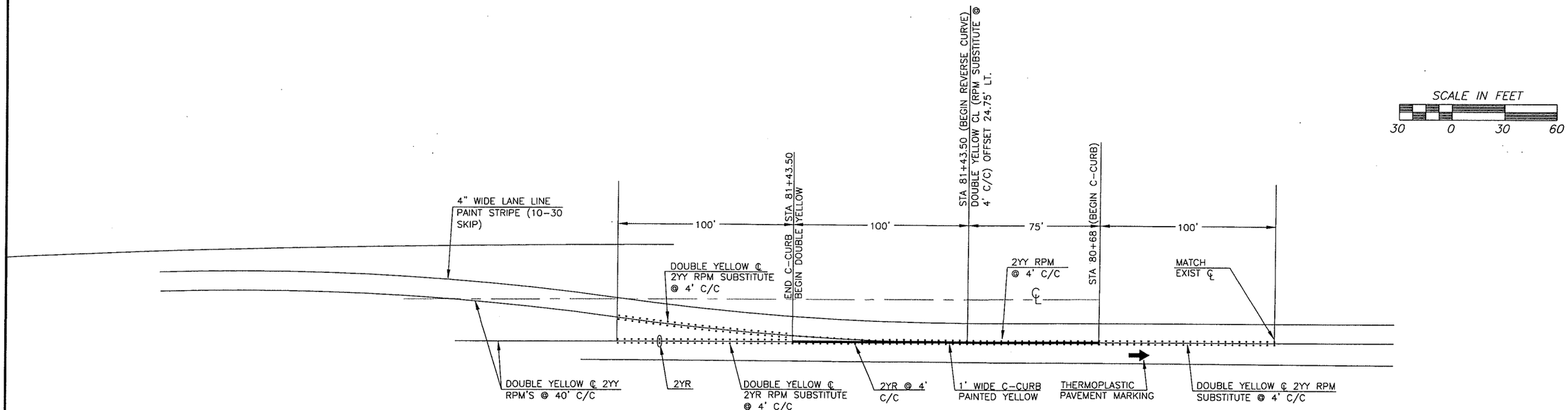

DETAIL A

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ENGINEERING PROGRAM
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ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
INTERIM INTERSECTION STRIPING PLAN

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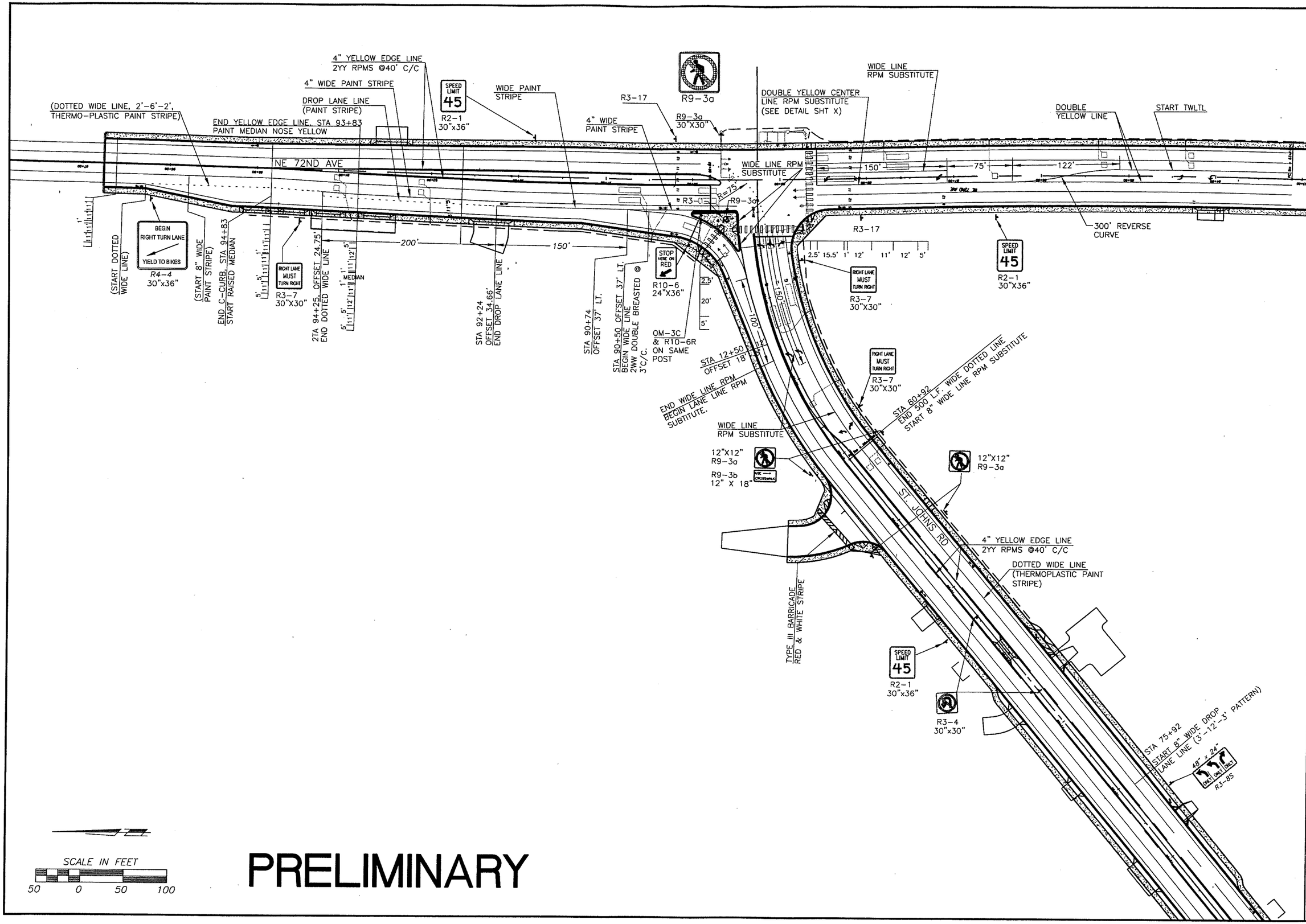

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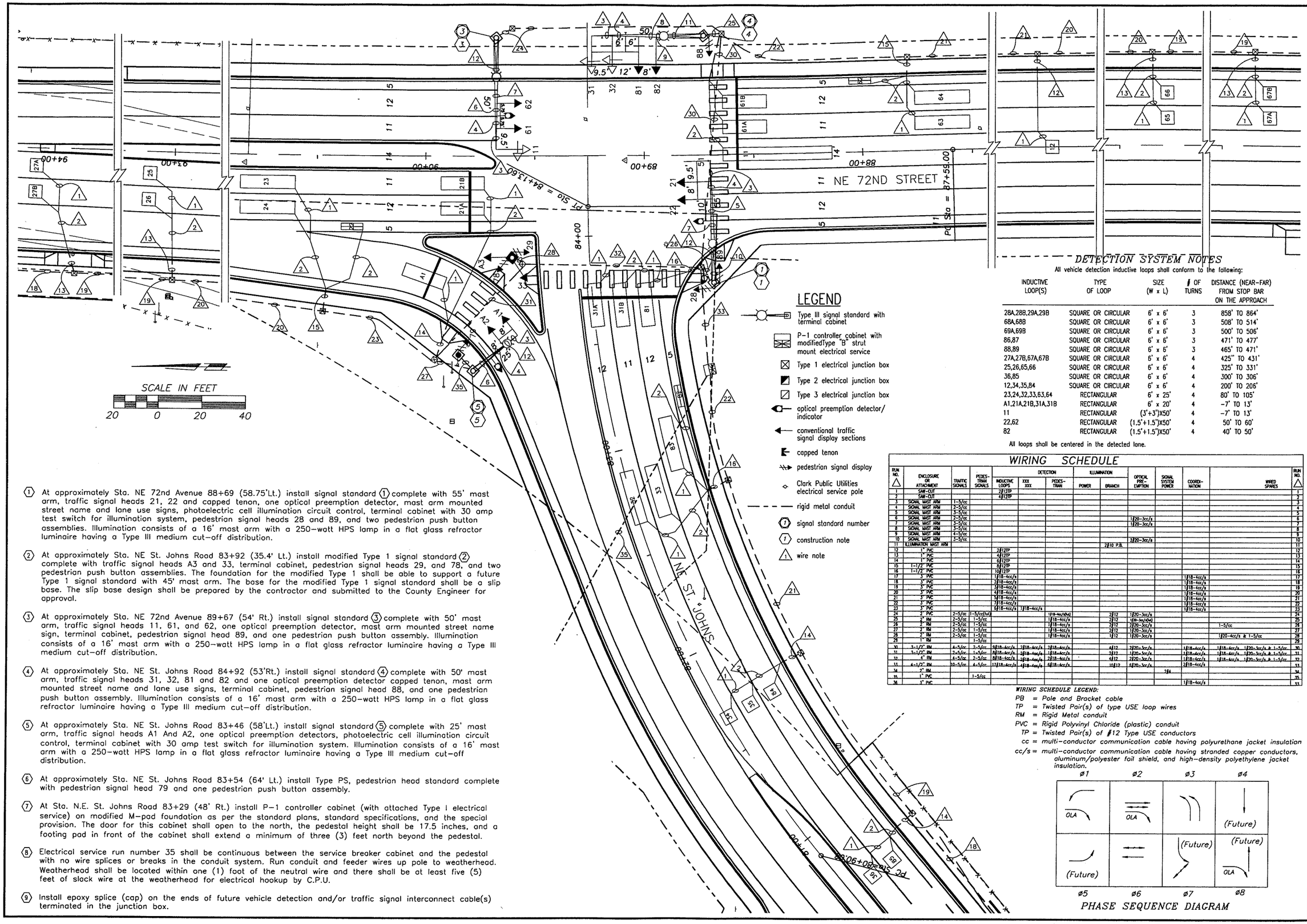

LEGEND

- Type III signal standard with terminal cabinet
- P-1 controller cabinet with modifiedType "B" strut mount electrical service
- Type 1 electrical junction box
- Type 2 electrical junction box
- Type 3 electrical junction box
- optical preemption detector/ indicator
- conventional traffic signal display sections
- capped tenon
- pedestrian signal display
- Clark Public Utilities electrical service pole
- rigid metal conduit
- (1) signal standard number
- (1) construction note
- (1) wire note

DETECTION SYSTEM NOTES

All vehicle detection inductive loops shall conform to the following:

INDUCTIVE LOOP(S)	TYPE OF LOOP	SIZE (W x L)	# OF TURNS	DISTANCE (NEAR-FAR) FROM STOP BAR ON THE APPROACH
28A,28B,29A,29B	SQUARE OR CIRCULAR	6' x 6'	3	858' TO 864'
68A,68B	SQUARE OR CIRCULAR	6' x 6'	3	508' TO 514'
69A,69B	SQUARE OR CIRCULAR	6' x 6'	3	500' TO 506'
86,87	SQUARE OR CIRCULAR	6' x 6'	3	471' TO 477'
88,89	SQUARE OR CIRCULAR	6' x 6'	3	465' TO 471'
27A,27B,67A,67B	SQUARE OR CIRCULAR	6' x 6'	4	425" TO 431'
25,26,65,66	SQUARE OR CIRCULAR	6' x 6'	4	325' TO 331'
36,85	SQUARE OR CIRCULAR	6' x 6'	4	300' TO 306'
12,34,35,84	SQUARE OR CIRCULAR	6' x 6'	4	200' TO 206'
23,24,32,33,63,64	RECTANGULAR	6' x 25'	4	80' TO 105'
A1,21A,21B,31A,31B	RECTANGULAR	6' x 20'	4	-7' TO 13'
11	RECTANGULAR	(3'+3')X50'	4	-7' TO 13'
22,62	RECTANGULAR	(1.5'+1.5')X50'	4	50' TO 60'
82	RECTANGULAR	(1.5'+1.5')X50'	4	40' TO 50'

All loops shall be centered in the detected lane.

WIRING SCHEDULE

RUN NO. △	ENCLOSURE OR ATTACHMENT	TRAFFIC SIGNALS	PEDES-TRIAN SIGNALS	DETECTION: INDUCTIVE LOOPS	DETECTION: XXX XXX	DETECTION: PEDES-TRIAN	ILLUMINATION: POWER	ILLUMINATION: BRANCH	OPTICAL PRE-EMPTION	SIGNAL SYSTEM POWER	COORDI-NATION	WIRED SPARES	RUN NO. △
1	SAW-CUT			2/12TP									1
2	SAW-CUT			4/12TP									2
3	SIGNAL MAST ARM	1-5/cc											3
4	SIGNAL MAST ARM	2-5/cc											4
5	SIGNAL MAST ARM	3-5/cc											5
6	SIGNAL MAST ARM	2-5/cc							1/20-3cc/s				6
7	SIGNAL MAST ARM	3-5/cc							1/20-3cc/s				7
8	SIGNAL MAST ARM	3-5/cc											8
9	SIGNAL MAST ARM	4-5/cc											9
10	SIGNAL MAST ARM	3-5/cc							3/20-3cc/s				10
11	ILLUMINATION MAST ARM							2/10 PB					11
12	1" PVC			2/12TP									12
13	1" PVC			4/12TP									13
14	1" PVC			6/12TP									14
15	1-1/2" PVC			8/12TP									15
16	1-1/2" PVC			10/12TP									16
17	3" PVC			1/18-4cc/s							1/18-4cc/s		17
18	3" PVC			2/18-4cc/s							1/18-4cc/s		18
19	3" PVC			3/18-4cc/s							1/18-4cc/s		19
20	3" PVC			4/18-4cc/s							1/18-4cc/s		20
21	3" PVC			5/18-4cc/s							1/18-4cc/s		21
22	3" PVC			7/18-4cc/s							1/18-4cc/s		22
23	3" PVC			6/18-4cc/s	1/18-4cc/s						1/18-4cc/s		23
24	2" PVC	2-5/cc	1-5/cc(tel)			1/18-4cc/s(tel)		2/12	1/20-3cc/s				24
25	2" RM	2-5/cc	1-5/cc			1/18-4cc/s		2/12	1/20-3cc/s(dim)				25
26	2" RM	2-5/cc	1-5/cc			1/18-4cc/s		2/12	2/20-3cc/s			1-5/cc	26
27	2" RM	2-5/cc	1-5/cc			1/18-4cc/s		2/12	1/20-3cc/s				27
28	2" RM	2-5/cc	1-5/cc			1/18-4cc/s		1/12	1/20-3cc/s			1/20-4cc/s & 1-5/cc	28
29	1" RM		1-5/cc										29
30	3-1/2" RM	4-5/cc	2-5/cc	8/18-4cc/s	2/18-4cc/s	2/18-4cc/s		4/12	2/20-3cc/s		1/18-4cc/s	1/18-4cc/s 1/20-3cc/s & 1-5/cc	30
31	3-1/2" RM	2-5/cc	1-5/cc	8/18-4cc/s	3/18-4cc/s	1/18-4cc/s		2/12	1/20-3cc/s		1/18-4cc/s	1/18-4cc/s 1/20-3cc/s & 1-5/cc	31
32	4" RM	4-5/cc	2-5/cc	8/18-4cc/s	3/18-4cc/s	2/18-4cc/s		4/12	2/20-3cc/s		1/18-4cc/s	1/18-4cc/s 1/20-3cc/s & 1-5/cc	32
33	4-1/2" RM	10-5/cc	4-5/cc	17/18-4cc/s	4/18-4cc/s	6/18-4cc/s		10/12	8/20-3cc/s		2/18-4cc/s		33
34	2" RM									2/14			34
35	1" PVC		1-5/cc										35
36	3" PVC										1/18-4cc/s		36

WIRING SCHEDULE LEGEND:

PB = Pole and Bracket cable
TP = Twisted Pair(s) of type USE loop wires
RM = Rigid Metal conduit
PVC = Rigid Polyvinyl Chloride (plastic) conduit
TP = Twisted Pair(s) of #12 Type USE conductors
cc = multi-conductor communication cable having polyurethane jacket insulation
cc/s = multi-conductor communication cable having stranded copper conductors, aluminum/polyester foil shield, and high-density polyethylene jacket insulation.

PHASE SEQUENCE DIAGRAM

(1) At approximately Sta. NE 72nd Avenue 88+69 (58.75'Lt.) install signal standard (1) complete with 55' mast arm, traffic signal heads 21, 22 and capped tenon, one optical preemption detector, mast arm mounted street name and lane use signs, photoelectric cell illumination circuit control, terminal cabinet with 30 amp test switch for illumination system, pedestrian signal heads 28 and 89, and two pedestrian push button assemblies. Illumination consists of a 16' mast arm with a 250-watt HPS lamp in a flat glass refractor luminaire having a Type III medium cut-off distribution.

(2) At approximately Sta. NE St. Johns Road 83+92 (35.4' Lt.) install modified Type 1 signal standard (2) complete with traffic signal heads A3 and 33, terminal cabinet, pedestrian signal heads 29, and 78, and two pedestrian push button assemblies. The foundation for the modified Type 1 shall be able to support a future Type 1 signal standard with 45' mast arm. The base for the modified Type 1 signal standard shall be a slip base. The slip base design shall be prepared by the contractor and submitted to the County Engineer for approval.

(3) At approximately Sta. NE 72nd Avenue 89+67 (54' Rt.) install signal standard (3) complete with 50' mast arm, traffic signal heads 11, 61, and 62, one optical preemption detector, mast arm mounted street name sign, terminal cabinet, pedestrian signal head 89, and one pedestrian push button assembly. Illumination consists of a 16' mast arm with a 250-watt HPS lamp in a flat glass refractor luminaire having a Type III medium cut-off distribution.

(4) At approximately Sta. NE St. Johns Road 84+92 (53'Rt.) install signal standard (4) complete with 50' mast arm, traffic signal heads 31, 32, 81 and 82 and one optical preemption detector capped tenon, mast arm mounted street name and lane use signs, terminal cabinet, pedestrian signal head 88, and one pedestrian push button assembly. Illumination consists of a 16' mast arm with a 250-watt HPS lamp in a flat glass refractor luminaire having a Type III medium cut-off distribution.

(5) At approximately Sta. NE St. Johns Road 83+46 (58'Lt.) install signal standard (5) complete with 25' mast arm, traffic signal heads A1 And A2, one optical preemption detectors, photoelectric cell illumination circuit control, terminal cabinet with 30 amp test switch for illumination system. Illumination consists of a 16' mast arm with a 250-watt HPS lamp in a flat glass refractor luminaire having a Type III medium cut-off distribution.

(6) At approximately Sta. NE St. Johns Road 83+54 (64' Lt.) install Type PS, pedestrian head standard complete with pedestrian signal head 79 and one pedestrian push button assembly.

(7) At Sta. N.E. St. Johns Road 83+29 (48' Rt.) install P-1 controller cabinet (with attached Type I electrical service) on modified M-pad foundation as per the standard plans, standard specifications, and the special provision. The door for this cabinet shall open to the north, the pedestal height shall be 17.5 inches, and a footing pad in front of the cabinet shall extend a minimum of three (3) feet north beyond the pedestal.

(8) Electrical service run number 35 shall be continuous between the service breaker cabinet and the pedestal with no wire splices or breaks in the conduit system. Run conduit and feeder wires up pole to weatherhead. Weatherhead shall be located within one (1) foot of the neutral wire and there shall be at least five (5) feet of slack wire at the weatherhead for electrical hookup by C.P.U.

(9) Install epoxy splice (cap) on the ends of future vehicle detection and/or traffic signal interconnect cable(s) terminated in the junction box.

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STATE OF WASHINGTON MICHAEL E. KAHN 13938 PROFESSIONAL ENGINEER EXPIRES: JAN. 01, 2006

ENGINEERING PROGRAM DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)

TRAFFIC SIGNAL PLAN

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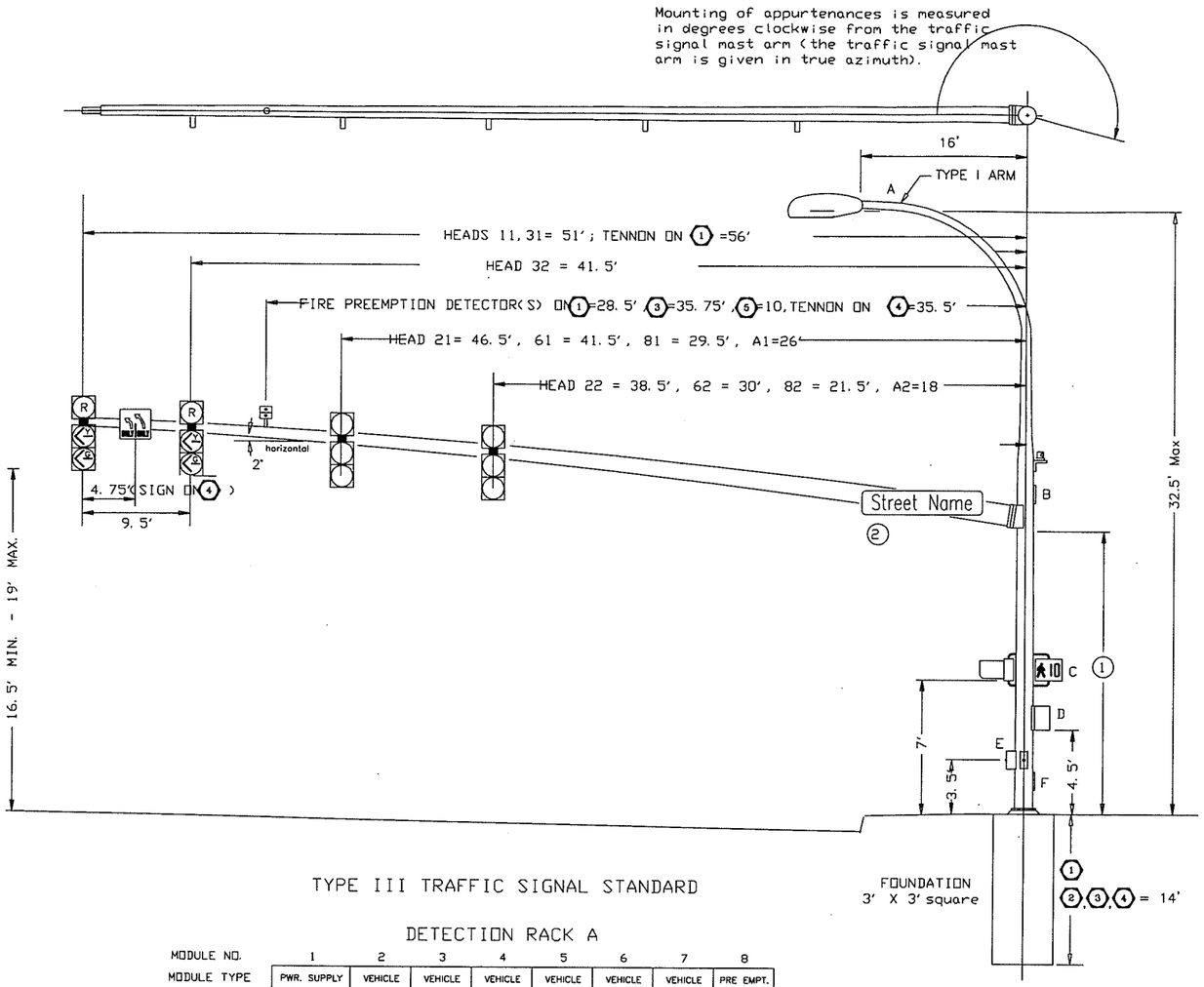
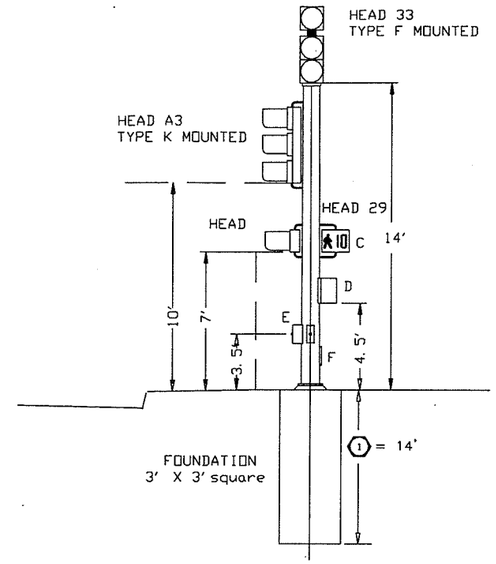
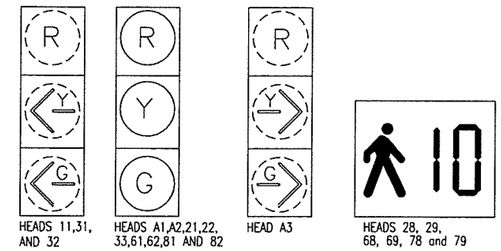


TYPE III TRAFFIC SIGNAL STANDARD



MODIFIED TYPE I TRAFFIC SIGNAL STANDARD



NOTES:

1. TRAFFIC SIGNAL HEADS 11, 31 AND 32 SHALL BE OPTICALLY PROGRAMMED.
2. TRAFFIC SIGNAL HEADS SHALL HAVE 12" SECTIONS, SQUARE DOORS, BACKPLATES, TYPE M MOUNTS AND TUNNEL VISORS (EXCEPT OPTICALLY PROGRAMMED SECTIONS WHICH HAVE CUTAWAY VISORS).
3. ALL RED AND GREEN DISPLAYS SHALL BE LED-TYPE.
4. PEDESTRIAN SIGNAL HEADS ARE 16" (H) x 19 1/2" (W) x 10 1/2" (D) UNITS HAVING SOLID FILLED LED "HAND" AND LED "WALKER" MESSAGES HAVING A TWO (2) DIGIT, SEVEN (7) SEGMENT NUMERICAL COUNT DOWN DISPLAY, Z CRATE VISORS, AND TYPE E MOUNTS.

CONSTRUCTION NOTES FOR MODIFIED TYPE 1 SIGNAL STANDARD.

1. The foundation anchor plate for the modified type 1 signal standard shall be designed by the contractor to support the extra long signal standard and other appurtenances as shown on the plan.
2. The foundation shall be designed to support future type 3 signal standard with 45 feet mast arm.
3. An anchor plate to support the future type 3 signal standard with 45 feet mast arm shall be provided for in the foundation.
4. Pedestrian signal heads shall be type E mounted.
5. Signal head F shall be type F mounted.
6. Signal head A3 shall be type K mounted.

DETECTION RACK A

MODULE NO.	1	2	3	4	5	6	7	8
MODULE TYPE	PWR. SUPPLY	VEHICLE	VEHICLE	VEHICLE	VEHICLE	VEHICLE	VEHICLE	PRE EMPT.
CHANNEL 1	MODULE 2, 3	11	63	12	23	22	SPARE	NORTH-BOUND
2	MODULE 4, 5	61A&B	64	67A&B	24	42	SPARE	SOUTH-BOUND
3	MODULE 6, 7	51	65	52	25	62	SPARE	EAST-BOUND
4	SPARE	21A&B	66	27A&B	26	82	SPARE	WEST-BOUND

common home-run cable (4cc/s)

DETECTION RACK B

MODULE NO.	1	2	3	4	5	6	7	8
MODULE TYPE	PWR. SUPPLY	VEHICLE	VEHICLE	VEHICLE	VEHICLE	VEHICLE	VEHICLE	PRE EMPT.
CHANNEL 1	MODULE 2, 3	41	44	32	34	A1	SPARE	
2	MODULE 4, 5	71	73	33	35	SPARE	SPARE	
3	MODULE 6, 7	72	31A&B	83	36	SPARE	SPARE	
4	SPARE	43	81	84	85	SPARE	SPARE	

common home-run cable (4cc/s)

VEHICLE DETECTION RACKS

NOTES:

(1) Mast arm attachment varies with manufacturer.

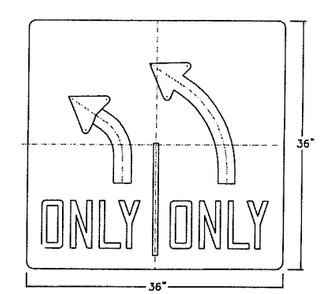
(2) Street name and regulatory (R10-12) signs attached per standard plan J-6h. Street name signs are 18" high and have 8" u.c./6" l.c. series "C" black letters on diamond grade VIP reflectorized yellow background. Signs shall include borders, margins, and corner radii. Legends are as follows:

(1) St. Johns Rd.
(4) N.E. 72nd Ave.

APPURTENANCE ORIENTATION

SIGNAL STANDARD	(1)	(2)	(3)	(4)
MAST ARM	2° T. A.	91° T. A.	182° T. A.	271° T. A.
A	0°	0°	0°	0°
B	180°	180°	180°	180°
C	143°	155°	142°	153°
D	143°	155°	142°	153°
E	2°/269°	1°/271°	2°/268°	2°/272°
F	180°	180°	180°	180°

T.A.=True Azimuth
A=Illumination mast arm
B=Handhole
C=Pedestrian Signal Heads
D=Terminal Cabinet
E=Pedestrian Pushbuttons with Signs
F=Handhole



LANE CONTROL SIGN FACE DETAILS

Note: Sign face material to be 3M Scotchlite Diamond Grade VIP or Approved equal

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STATE OF WASHINGTON ERIC A. KLEIN 23538 PROFESSIONAL ENGINEER EXPIRES JAN. 01, 2006

ENGINEERING PROGRAM
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ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
SIGNAL POLE DETAILS

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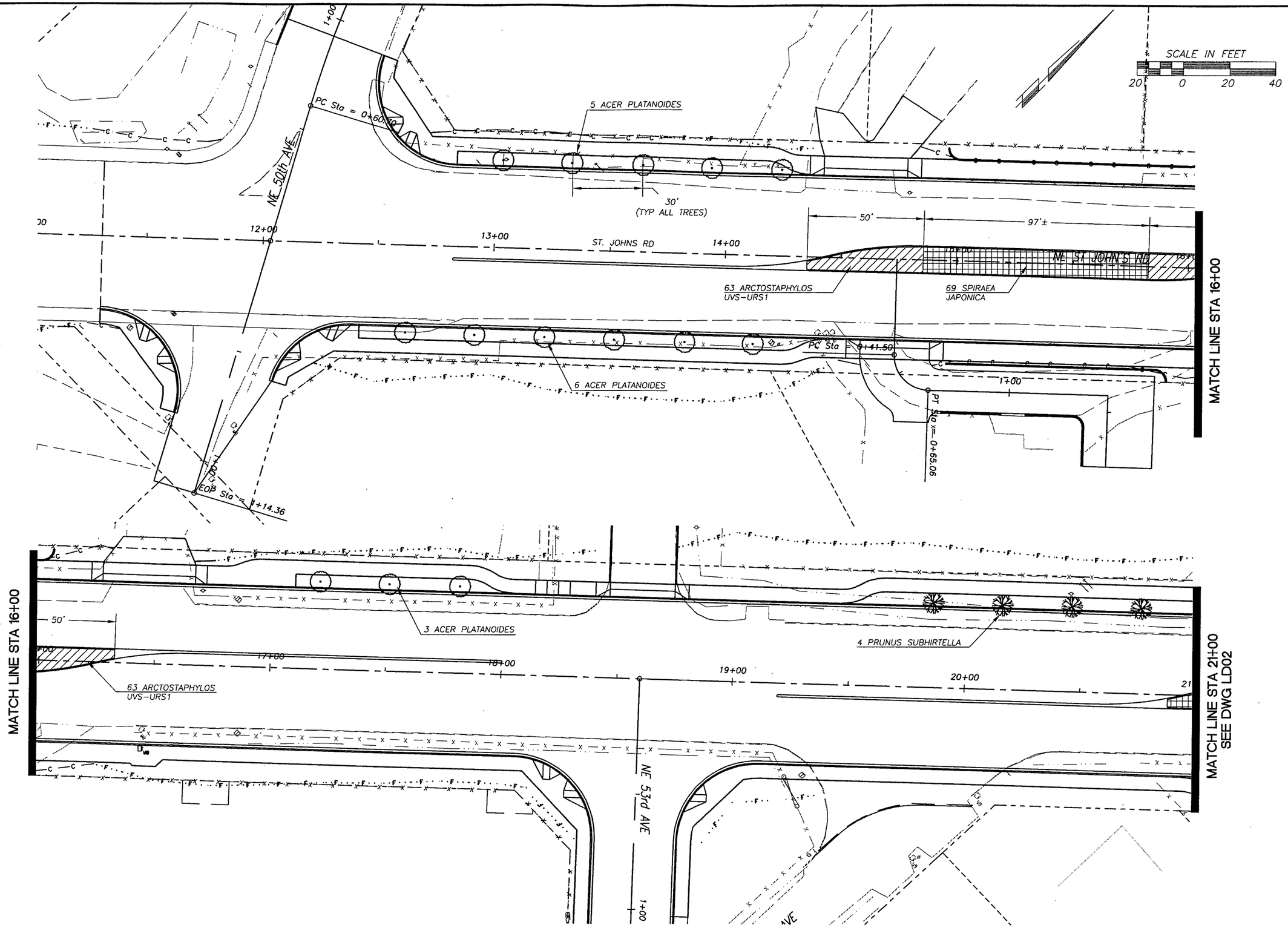

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MATTHEW A. KIRKRICK
STATE OF WASHINGTON
21830
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE PLAN

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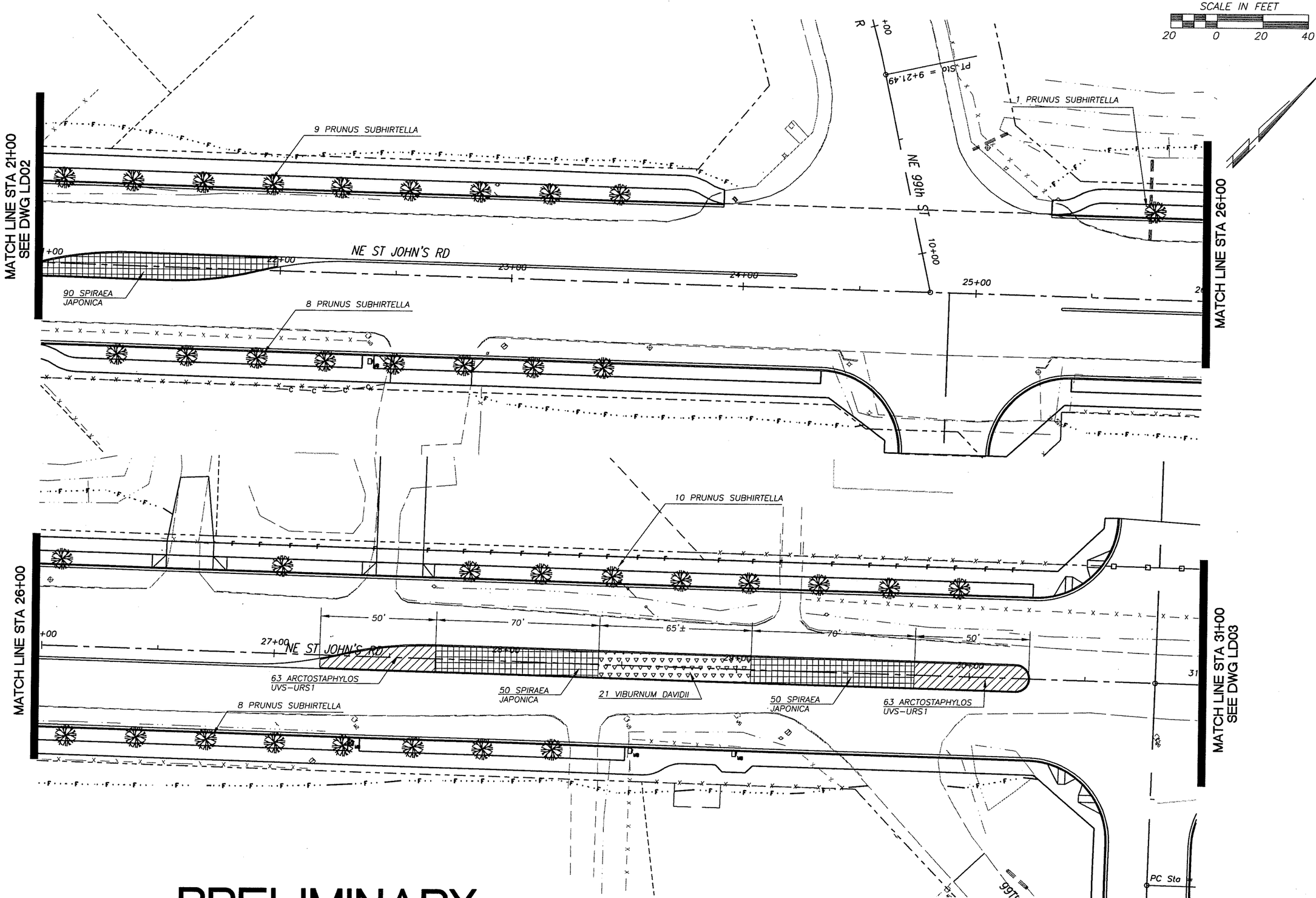

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STEVEN E. MARCK
STATE OF WASHINGTON
29030
REGISTERED PROFESSIONAL ENGINEER
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ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE PLAN

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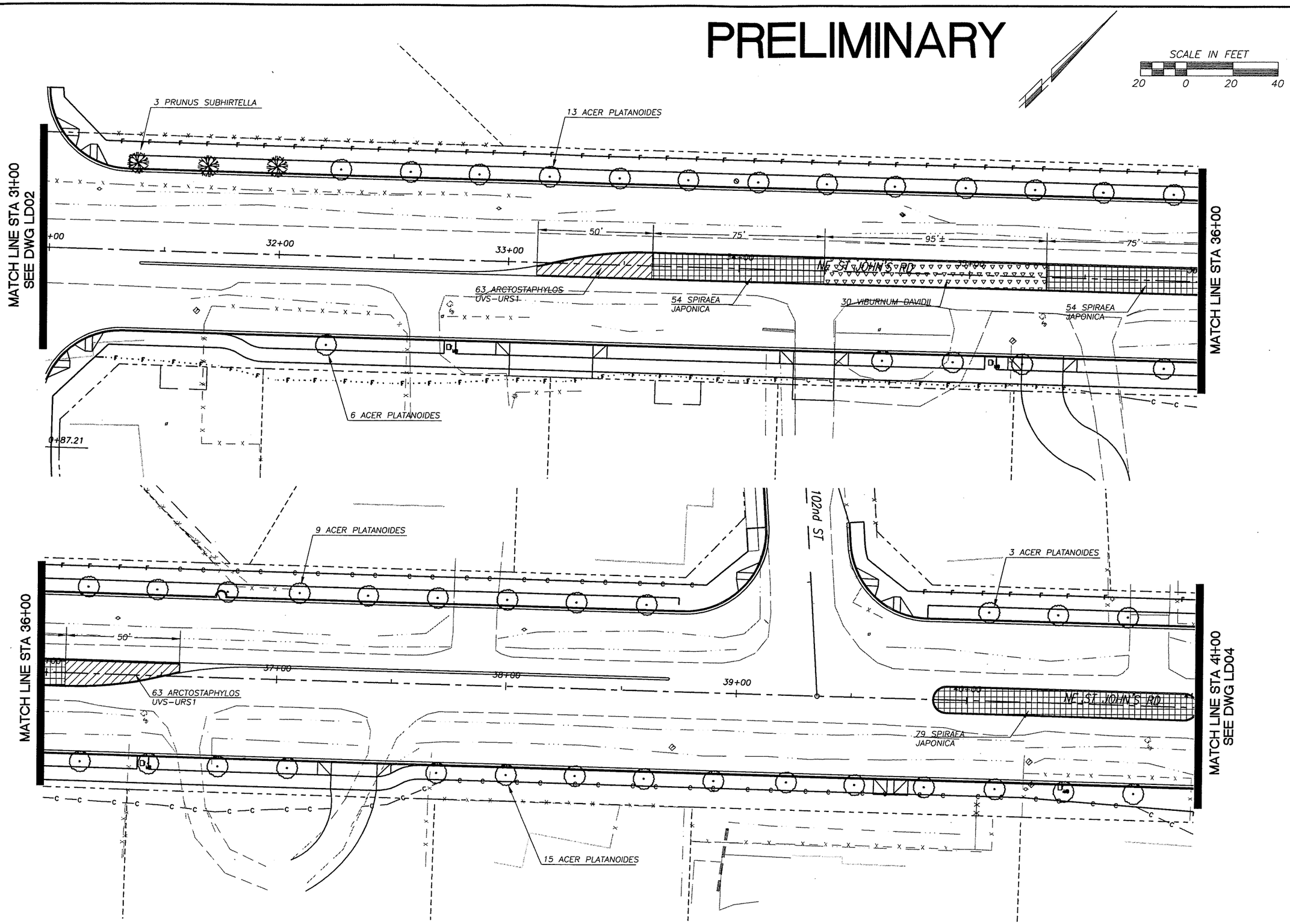
PRELIMINARY



DESIGNED	ME/JM
DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	LD3
SHEET	144 OF 151

CALL 48 HOURS BEFORE YOU DIG
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MICHAEL E. KEMPICK
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2006

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE PLAN

proud past, promising future
CLARK COUNTY
WASHINGTON

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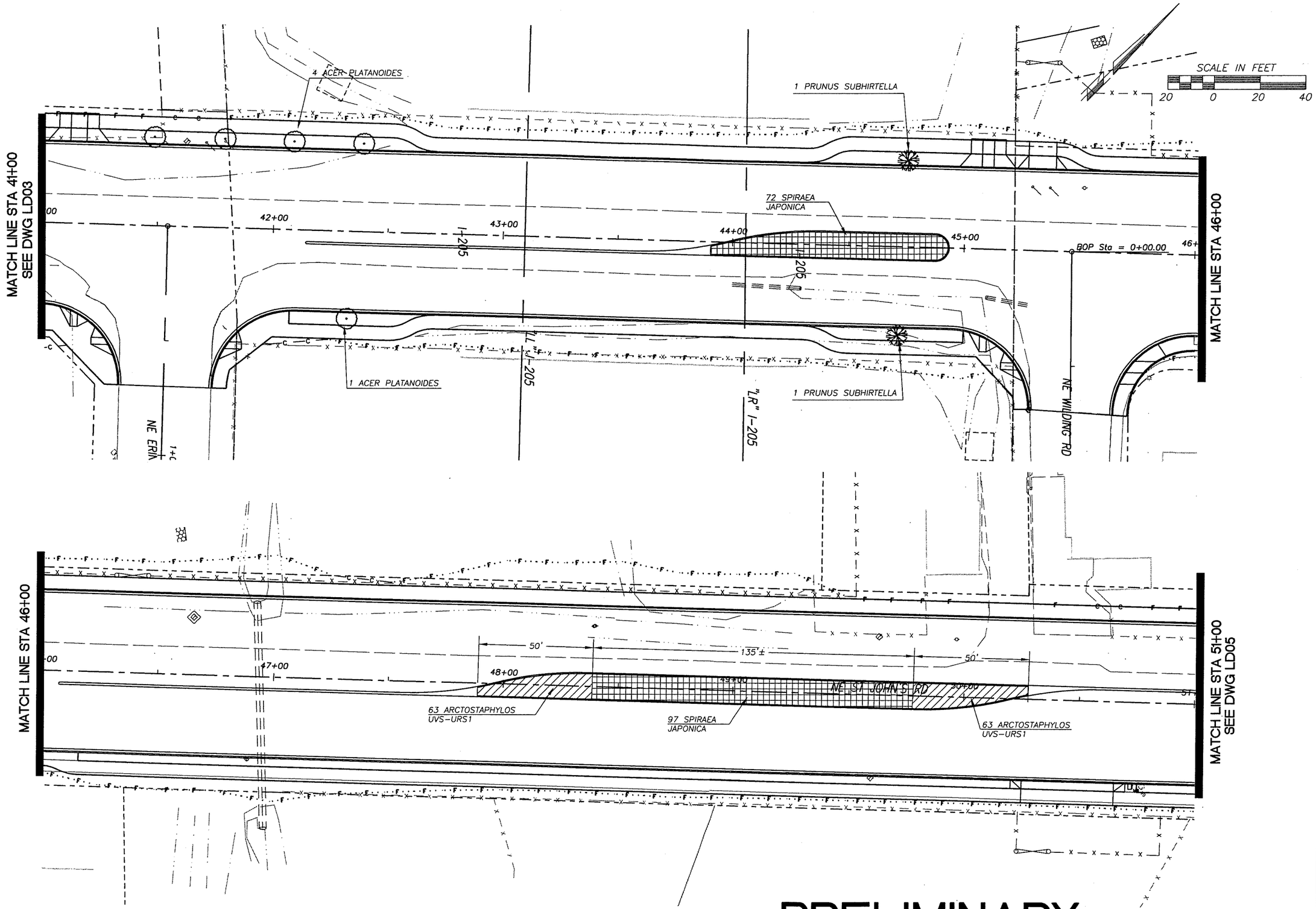

PRELIMINARY

DESIGNED ME/JM
DRAWN KB/RK
CRP 301422
HOR. SEE SHEET
VERT. SEE SHEET
DATE 07/31/05
DWG: LD4
SHEET 145 OF 151

CALL 48 HOURS BEFORE YOU DIG
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MICHAEL J. KARLOVIC
STATE OF WASHINGTON
28030
REGISTERED PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE PLAN

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WASHINGTON

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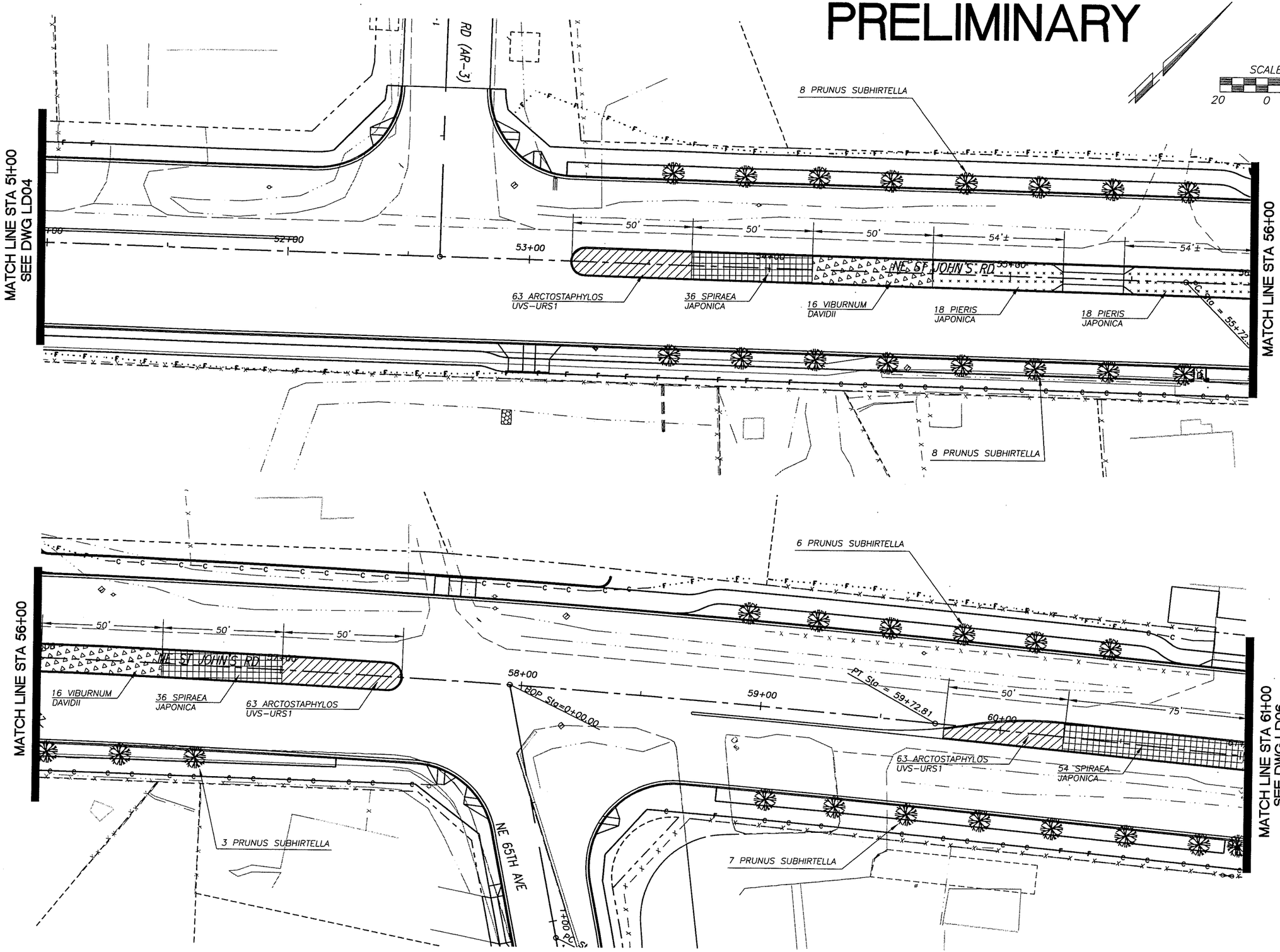
PRELIMINARY



DESIGNED ME/JM
DRAWN KB/RK
CRP: 301422
HOR. SEE SHEET
VERT. SEE SHEET
DATE 07/31/05
DWG: LD5
SHEET 146 OF 151

CALL 48 HOURS BEFORE YOU DIG
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MICHAEL W. EMRICK
DESIGNER
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE PLAN

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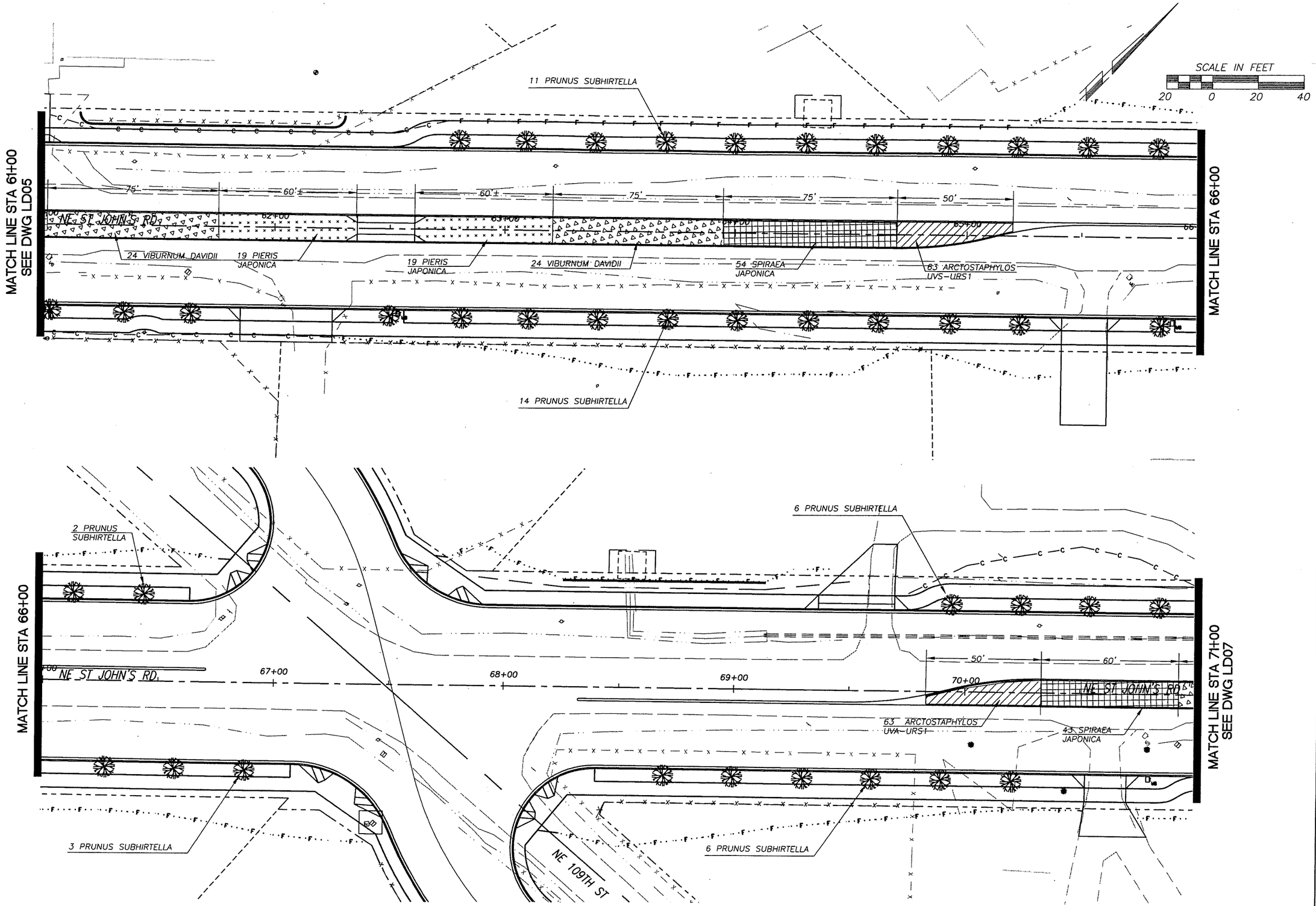

PRELIMINARY

DESIGNED	ME/JM
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CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	LD6
SHEET	147 OF 151

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MICHAEL E. KERRICK
STATE OF WASHINGTON
29030
PROFESSIONAL ENGINEER
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DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE PLAN

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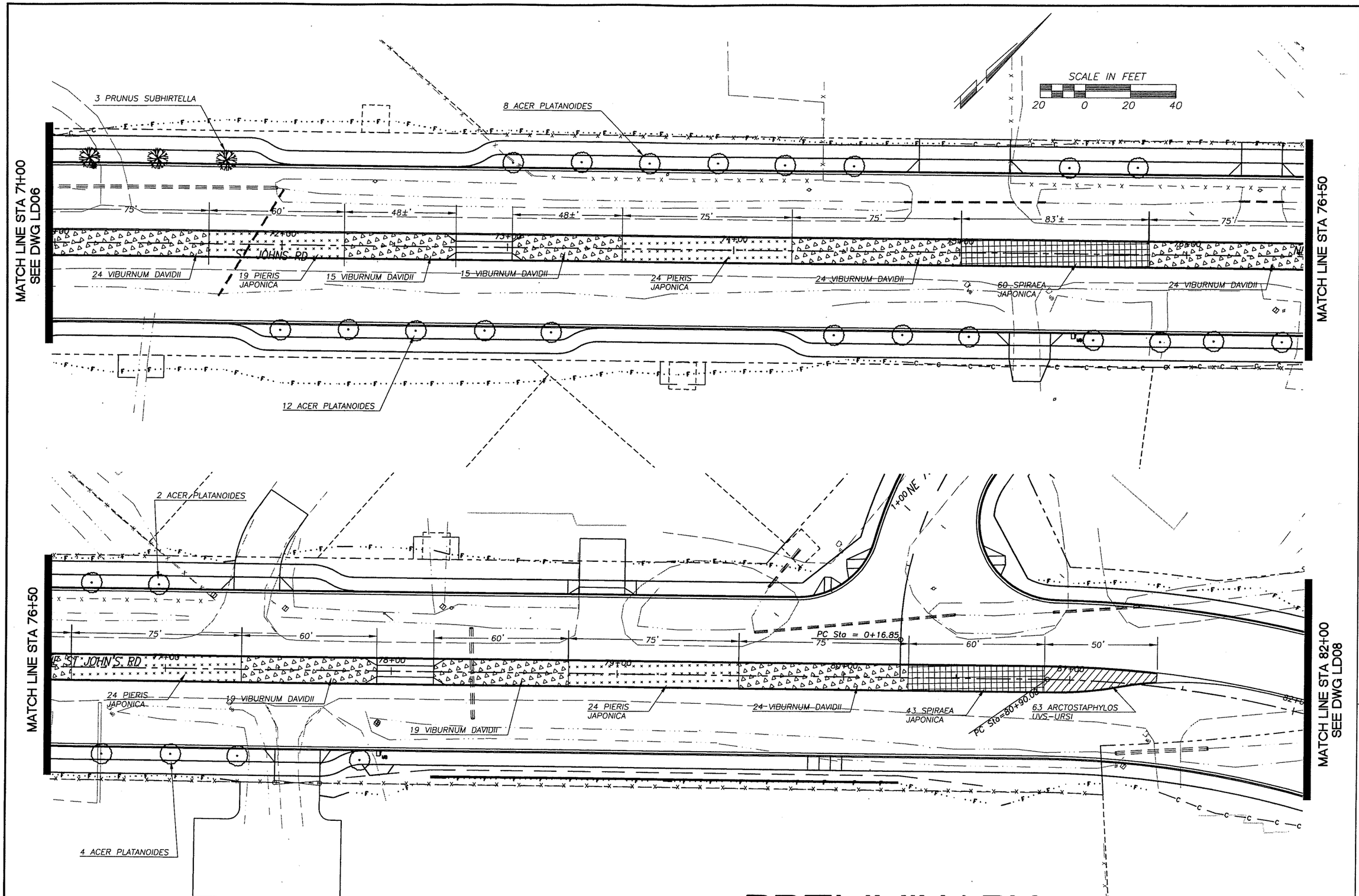

PRELIMINARY

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HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG.	LD7
SHEET	148 OF 151

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MICHAEL M. CARLOCK STATE OF WASHINGTON 29030 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 28, 2007

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ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE PLAN

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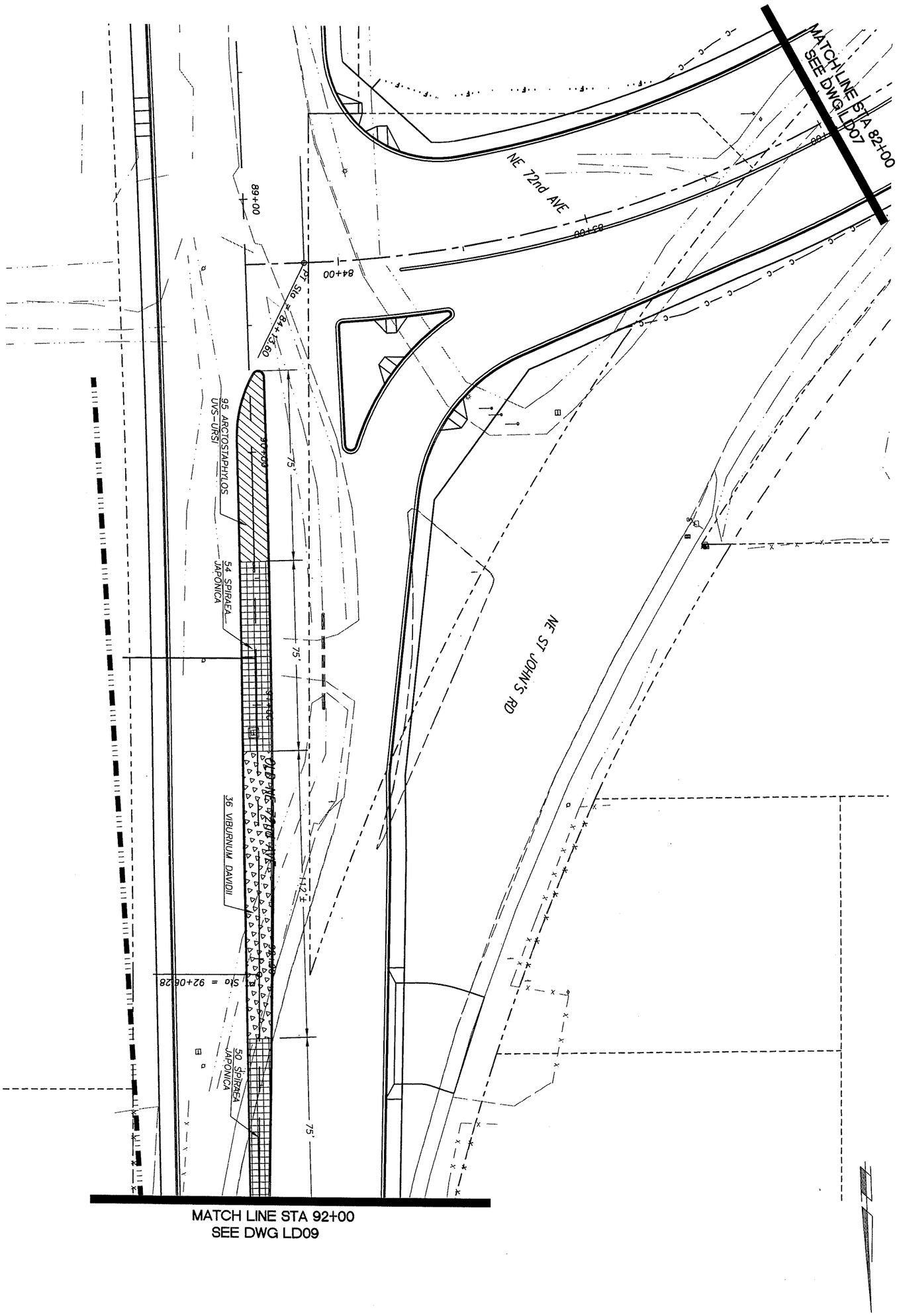

PRELIMINARY

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ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE PLAN

MICHAEL M. ENBICK
STATE OF WASHINGTON
29630
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: MAY 28, 2007

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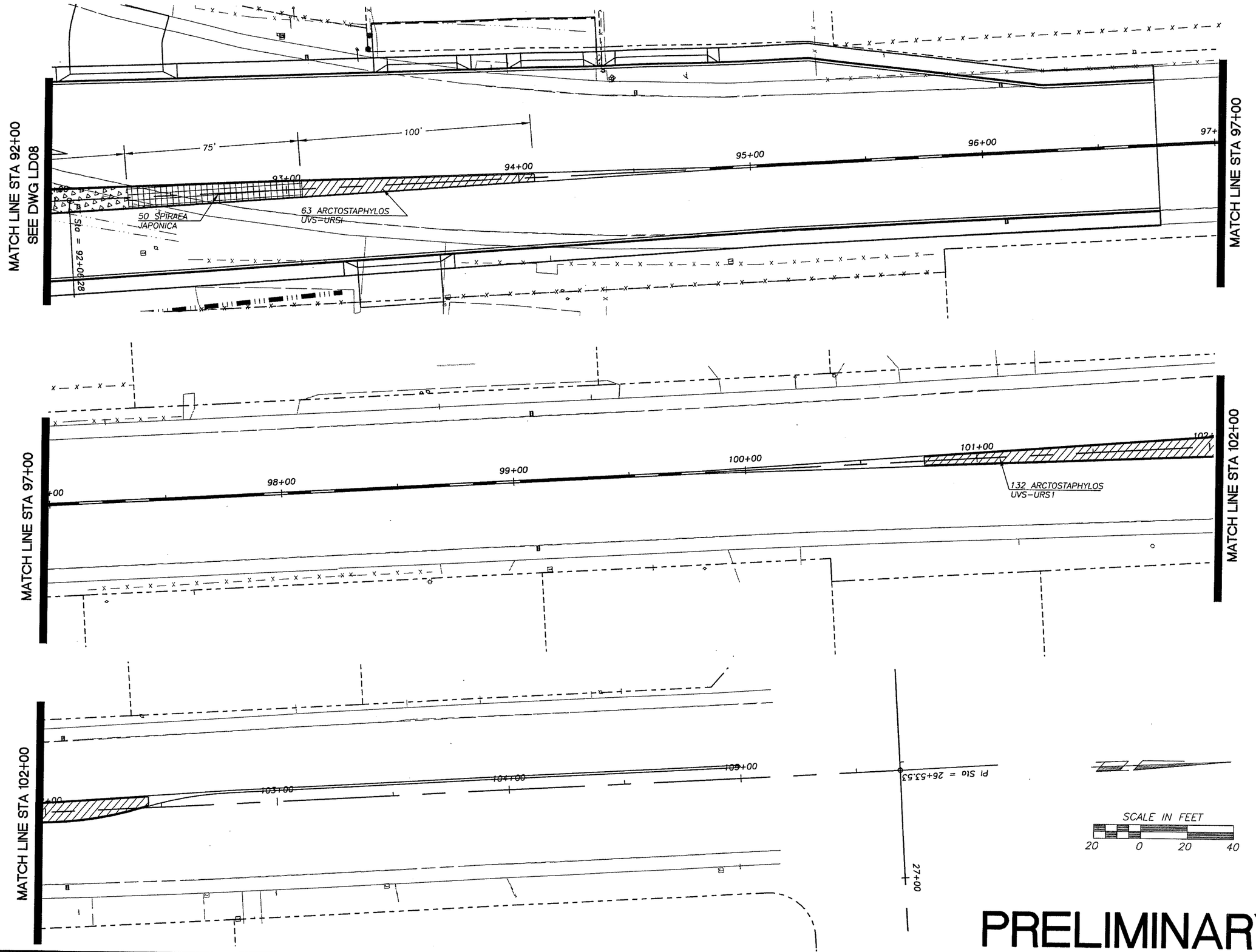
DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	LD8
SHEET	149 OF 151



PRELIMINARY

DESIGNED	ME/JM
DRAWN	KB/RK
CRP	301422
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	07/31/05
DWG:	LD9
SHEET	150 OF 151

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MICHAEL K. EMRICK
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LANDSCAPE PLAN

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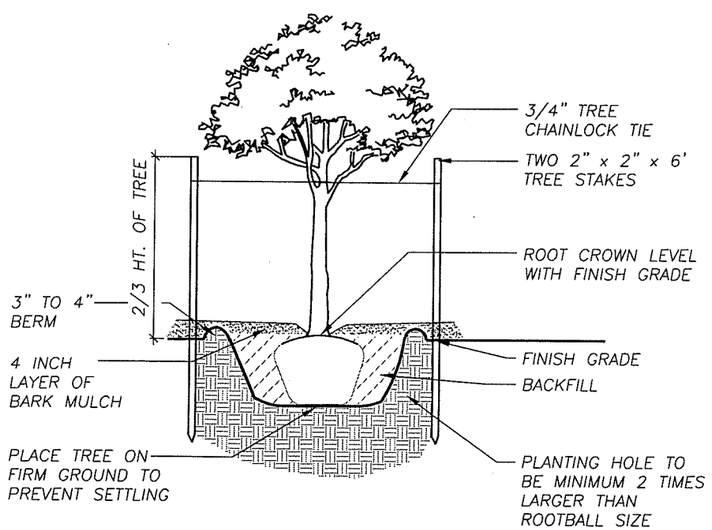
PRELIMINARY

PLANT TABLE

TYPE	BOTANICAL NAME/COMMON NAME	QUANTITY	SIZE	CONDITION	SPACING
TREES:					
	ACER PLATANOIDES 'CRIMSON SENTRY' / CRIMSON SENTRY NORWAY MAPLE	79	1 3/4" CAL.	B & B	30'
	PRUNUS SUBHIRTELLA / AUTUMN FLOWERING CHERRY	95	1 3/4" CAL.	B & B	30'
SHRUBS:					
	SPIRAEA JAPONICA 'GOLDFLAME' / GOLDFLAME SPIRAEA	1054	1 GALLON	CONTAINER	2' O.C.
	PIERIS JAPONICA / FOREST FLAME	147	1 GALLON	CONTAINER	3' O.C.
	VIBURNUM DAVIDII / DAVID VIBURNUM	307	2 GALLON	CONTAINER	3' O.C.
GROUND COVER:					
	ARCTOSTAPHYLOS UVA-URSI / KINNIKINNICK	1172	4" POT	CONTAINER	18" O.C.

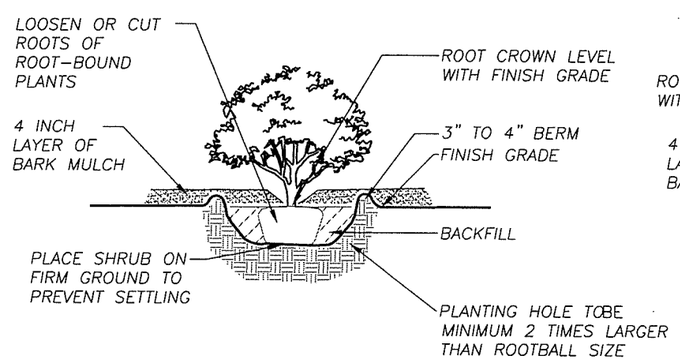
PLANTING NOTES

1. CONTRACTOR SHALL VERIFY ALL QUANTITIES, MEASUREMENTS, AND SITE CONDITIONS.
2. PLANTING PERIOD IS FROM APPROXIMATELY OCTOBER 15 TO APRIL 15, WEATHER DEPENDENT.
3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES.
4. INSTALLED PLANTS SHALL BE IMMEDIATELY WATERED IN BY CONTRACTOR.
5. ALL PLANT MATERIALS SHALL CONFORM IN SIZE AND GRADE TO THE "AMERICAN STANDARD FOR NURSERY STOCK", CURRENT EDITION.
6. PLANTS SHALL BE INSTALLED ACCORDING TO DETAILS SHOWN.
7. NO SUBSTITUTIONS IN PLANT VARIETIES SHALL BE MADE WITHOUT APPROVAL FROM CLARK COUNTY PARKS MAINTENANCE.
8. LANDSCAPE WORK SHALL BE REVIEWED AND APPROVED BY CLARK COUNTY PARKS MAINTENANCE. SOME FIELD ADJUSTMENT MAY BE NECESSARY TO REFLECT ACTUAL GRADING AND SITE CONDITIONS.
9. FOLLOWING PLANT INSTALLATION, 4 INCHES OF APPROVED BARK MULCH SHALL BE PLACED AROUND EACH PLANTING, THROUGHOUT THE PLANTING STRIPS, WITH SPECIAL CARE TO NOT BURY THE PLANTINGS.
10. FOLLOWING PLANTING, TREES SHALL BE STAKED ACCORDING TO DETAIL SHOWN.
11. FOLLOWING COMPLETION OF LANDSCAPE PROJECT, SITE SHALL BE MAINTAINED WEEKLY. MAINTENANCE SHALL INCLUDE: ADEQUATE WATERING OF ALL INSTALLED PLANTINGS TO ENSURE HEALTH AND SURVIVAL, REMOVING WEEDS, MONITOR TREE STAKES AND TIES TO ENSURE PROPER SUPPORT AND TO PREVENT TIES FROM GIRDLING TRUNKS. REMOVE TREE STAKES AND TIES AFTER ONE YEAR MINIMUM, OR AS NEEDED UNTIL ADEQUATE ANCHORING IS ATTAINED. BARK MULCH SHALL BE REAPPLIED AS NEEDED.



TREE PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

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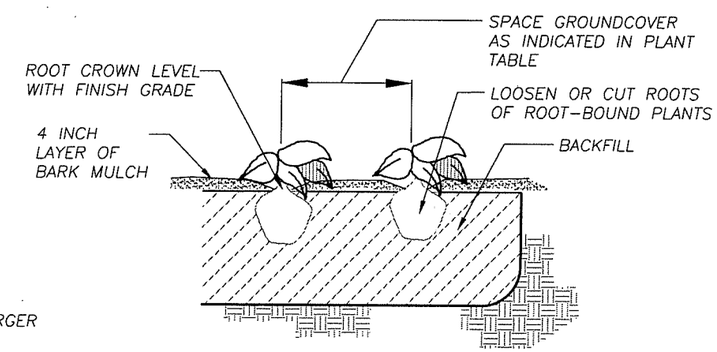

GROUNDCOVER PLANTING DETAIL

NOT TO SCALE

DESIGNED ME/JM
DRAWN KB/RK
CRP 301422
HOR. SEE SHEET
VERT. SEE SHEET
DATE 07/31/05
DWG: LD10
SHEET 151 OF 151

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MICHAEL W. LEMOIC STATE OF WASHINGTON 29030 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 28, 2007

ENGINEERING PROGRAM
DESIGN SECTION

ST JOHNS ROAD (NE 50TH AVE TO NE 72ND AVE)
LANDSCAPE DETAILS

proud past, promising future
CLARK COUNTY WASHINGTON

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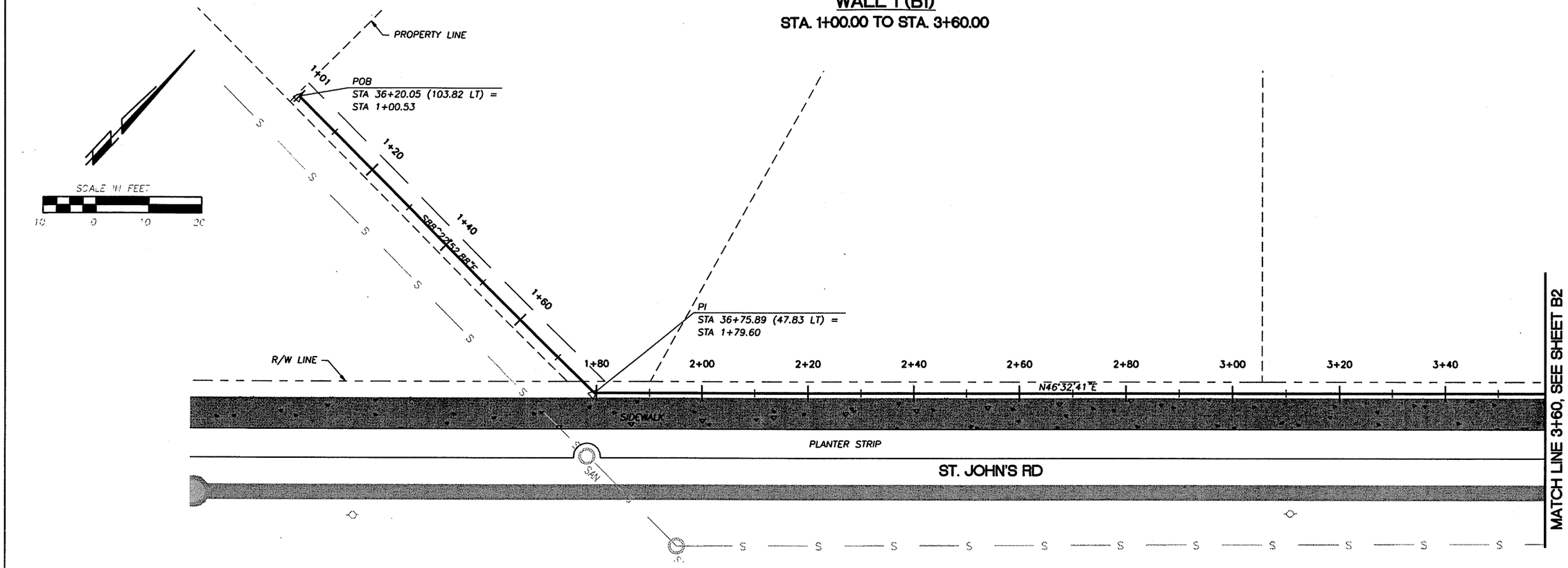
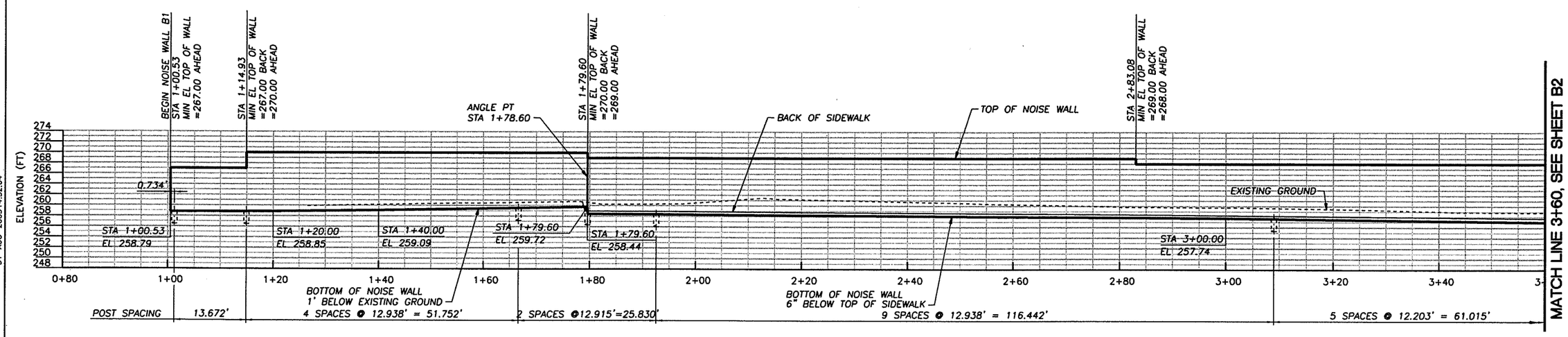
WALL 1 (B1)

STA. 1+00.00 TO STA. 3+60.00





GENERAL NOTES:

1. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2002 AND ADMENDMENTS.
2. THESE STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SEVENTEENTH EDITION – 2002. ALL STRUCTURAL ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS FOR LOAD FACTOR DESIGN. SEISMIC DESIGN OF THESE STRUCTURES HAS BEEN DONE USING AN ACCELERATION COEFFICIENT OF 0.17 AND SOIL TYPE IV.
3. UNLESS OTHERWISE SHOWN IN THE PLANS, THE CONCRETE COVER MEASURED FROM THE FACE OF THE CONCRETE TO THE FACE OF ANY STEEL SHALL BE 1 1/2".
4. ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GR50.
5. ALL DIMENSIONS ARE HORIZONTAL AND VERTICAL UNLESS OTHERWISE SHOWN.
6. STEEL PILES SHALL BE PAINTED TO LIMITS SHOWN IN THE PLANS.
7. ALL DRILLED SHAFTS FOR PILES SHALL BE FILLED WITH LEAN CONCRETE, EXCEPT AS NOTED.
8. ALL EXPOSED SURFACES OF ALL WALLS SHALL BE TREATED WITH "CLEAR SATIN FINISH".

DESIGNED	CEN
DRAWN	DLM
CRP	301422
HOR.	1"=10'
VERT.	1"=10'
DATE	10/31/03
DWG.	B01
SHEET 1	OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

ST. JOHNS RD. (NE 50TH TO NE 72ND)
NOISE BARRIER WALL 1

CONRAD E. NELSON STATE OF WASHINGTON 13576 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

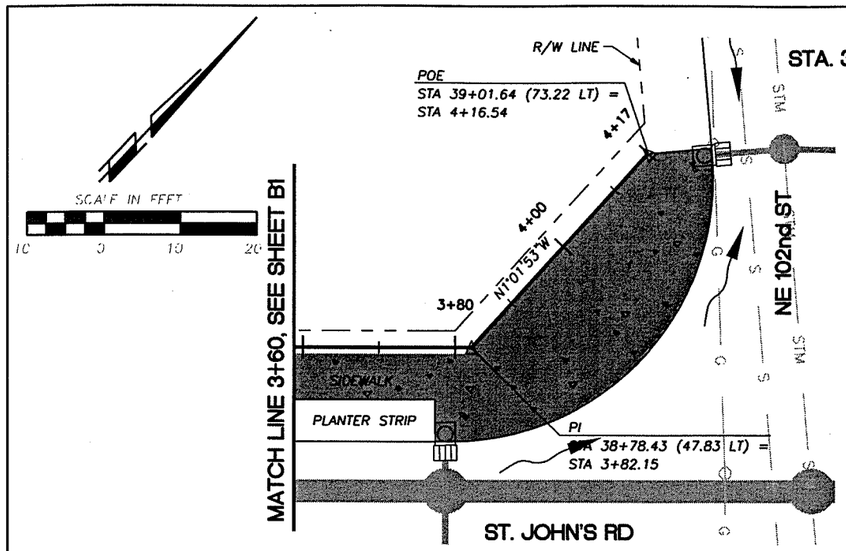
CLARK COUNTY WASHINGTON

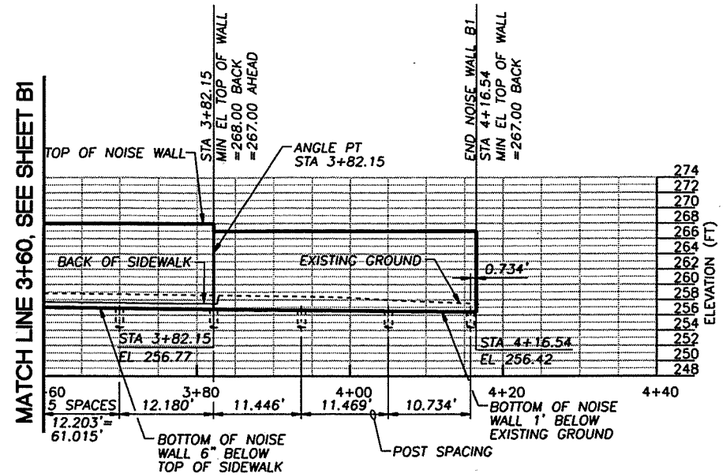
31-AUG-2005 14:52:04

$$$$username$$$$

NDM:1540831B0257wo01.dlv

WALL 1 (B2)
STA. 3+60.00 TO STA. 4+17.91





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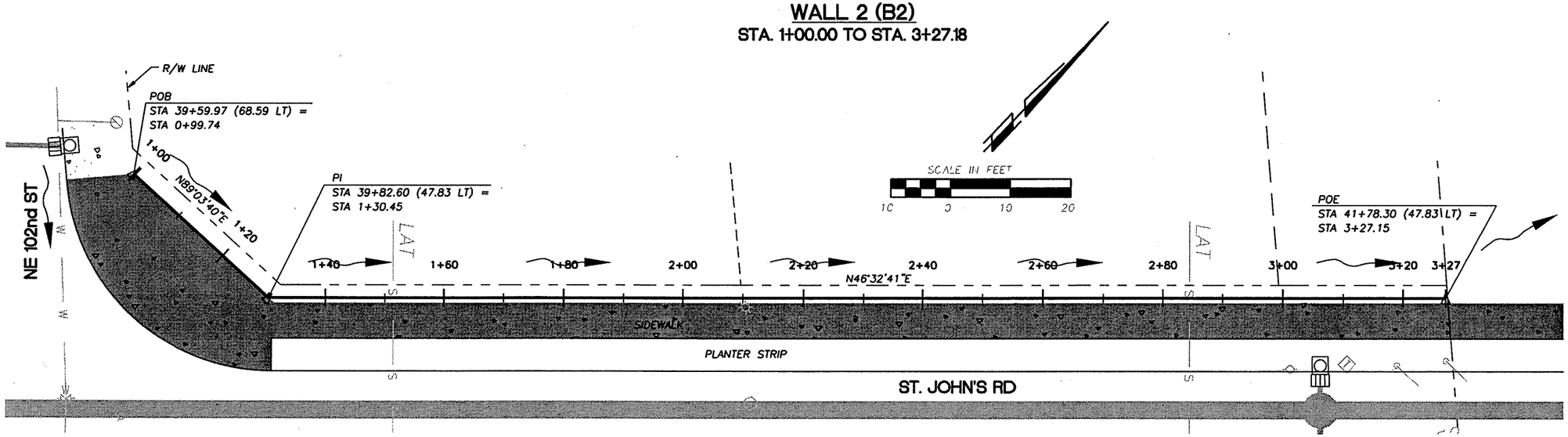
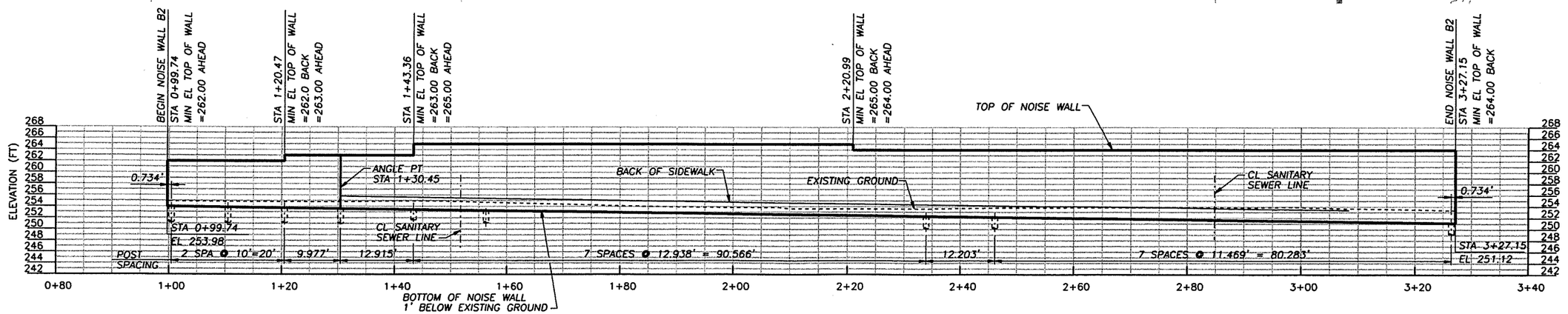
STA. 1+00.00 TO STA. 3+27.18





DESIGNED CEN
DRAWN DLM
CRP 301422
HOR. 1"=10'"
VERT. 1"=10'"
DATE 10/31/03
DWG: B02
SHEET 2 OF 26

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DESIGN & ENGINEERING DIVISION

ST. JOHNS RD. (NE 50TH TO NE 72ND)
NOISE BARRIER WALLS 1 AND 2

CH2MHILL

CLARK COUNTY WASHINGTON

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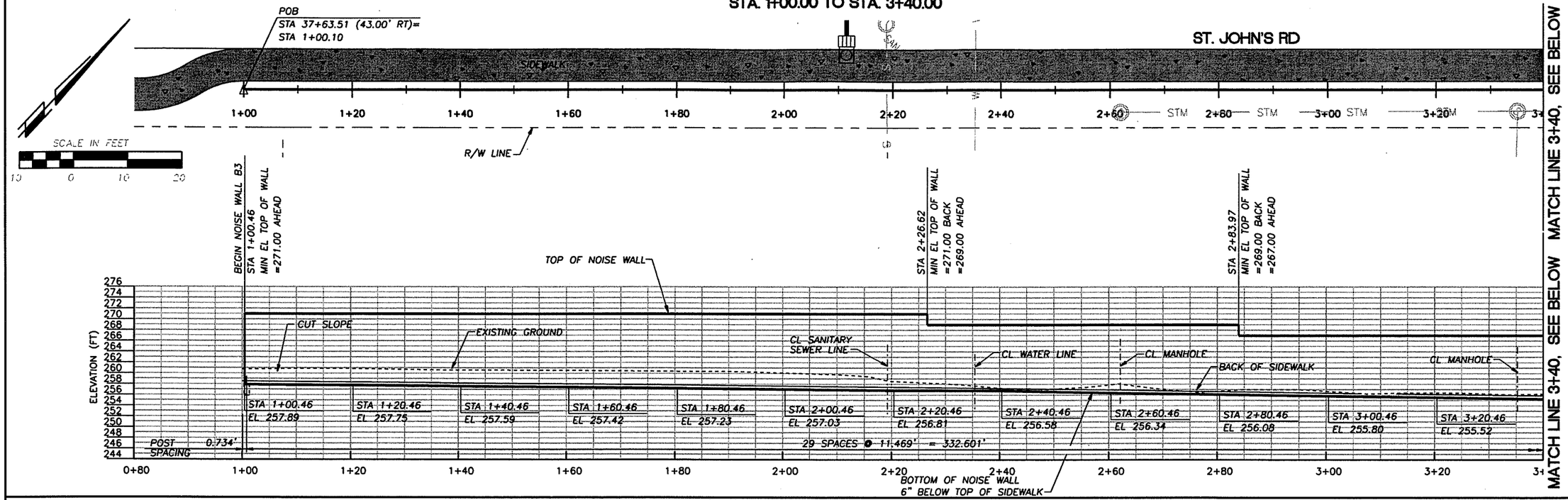
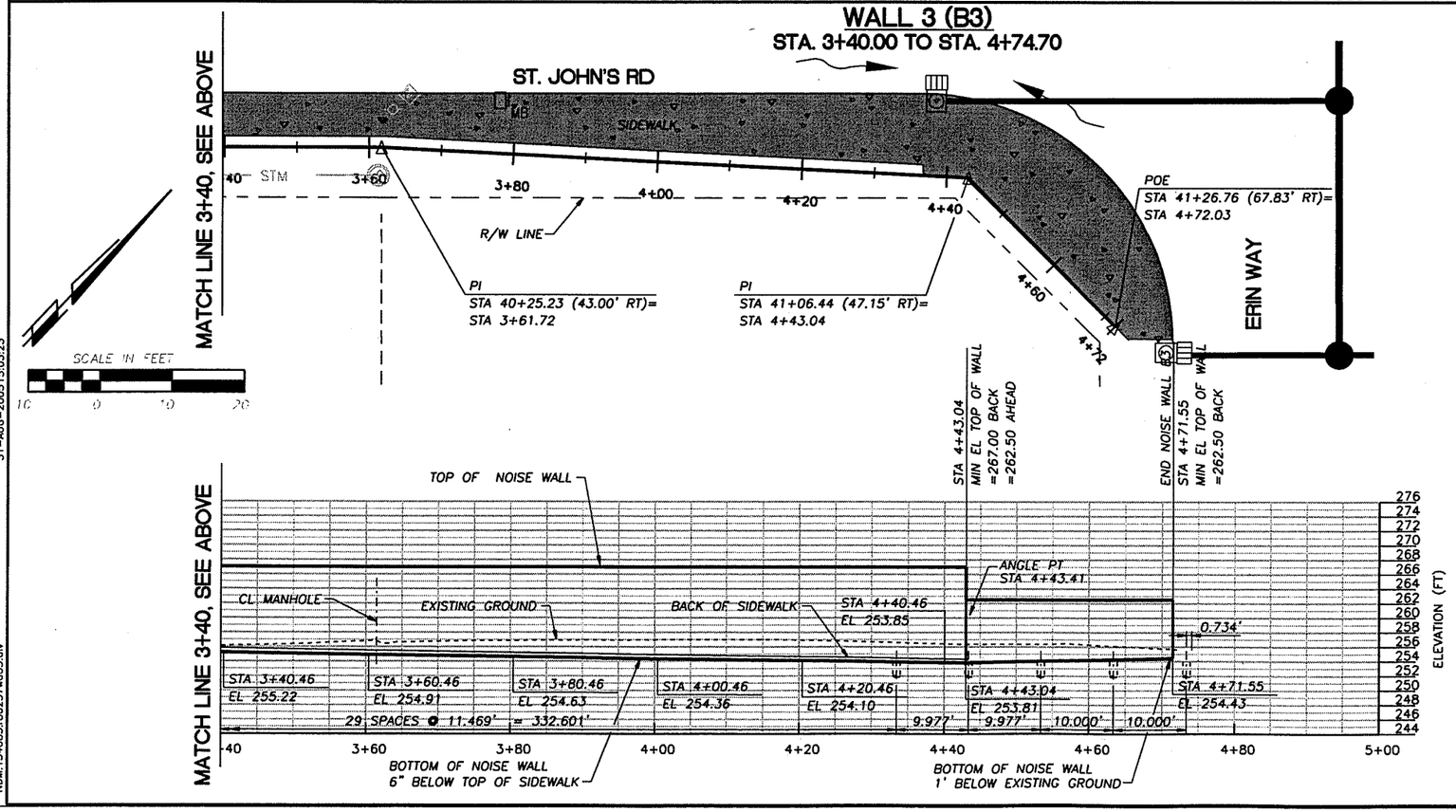
WALL 3 (B3)
STA. 1+00.00 TO STA. 3+40.00



WALL 3 (B3)
STA. 3+40.00 TO STA. 4+74.70



DESIGNED CEN
DRAWN DLM
CRP 301422
HOR. 1"=10'
VERT. 1"=10'
DATE 10/31/03
DWG: B03
SHEET 3 OF 26

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DESIGN & ENGINEERING DIVISION

ST. JOHNS RD. (NE 50TH TO NE 72ND)
NOISE BARRIER WALL 3

C. SCOTT NELSON STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/...

CH2MHILL

CLARK COUNTY WASHINGTON

31-AUG-2005 15:03:23
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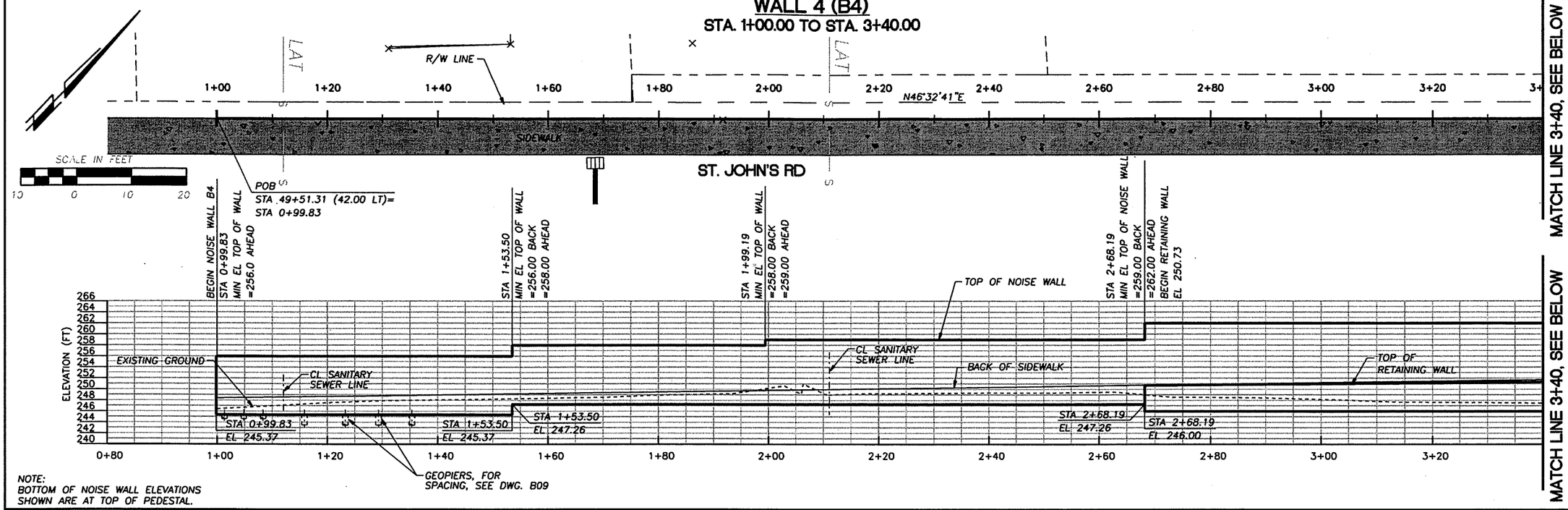
WALL 4 (B4)

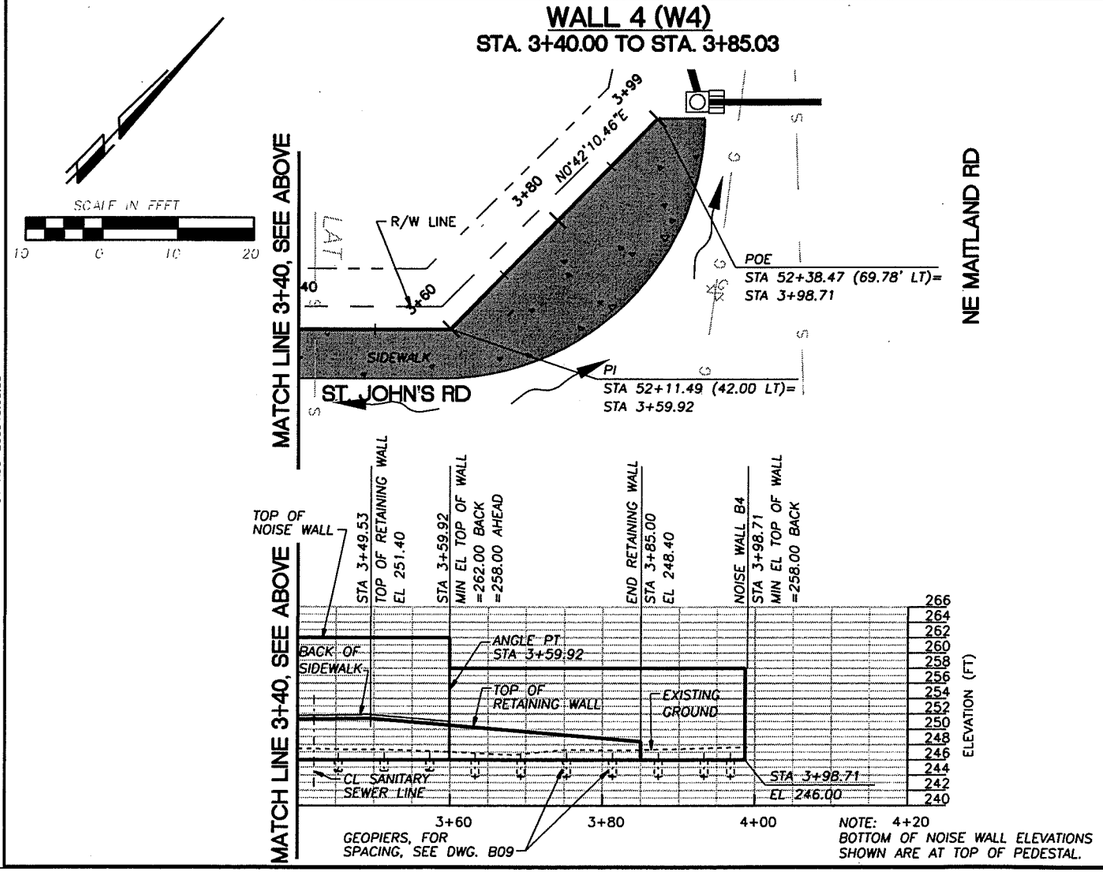
STA. 1+00.00 TO STA. 3+40.00



NOTE:
BOTTOM OF NOISE WALL ELEVATIONS SHOWN ARE AT TOP OF PEDESTAL.

WALL 4 (W4)

STA. 3+40.00 TO STA. 3+85.03



NOTE: 4+20
BOTTOM OF NOISE WALL ELEVATIONS SHOWN ARE AT TOP OF PEDESTAL.

DESIGNED	CEN
DRAWN	DLM
CRP	301422
HOR.	1"=10'
VERT.	1"=10'
DATE	10/31/03
DWG.	B04
SHEET	4 OF 26

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ST. JOHNS RD. (NE 50TH TO NE 72ND)
NOISE BR./STRC. EARTH WALL 4

CHARLES E. NELSON
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
EXPIRES 10/29/...

CH2MHILL

CLARK COUNTY WASHINGTON

$$$$username$$$$
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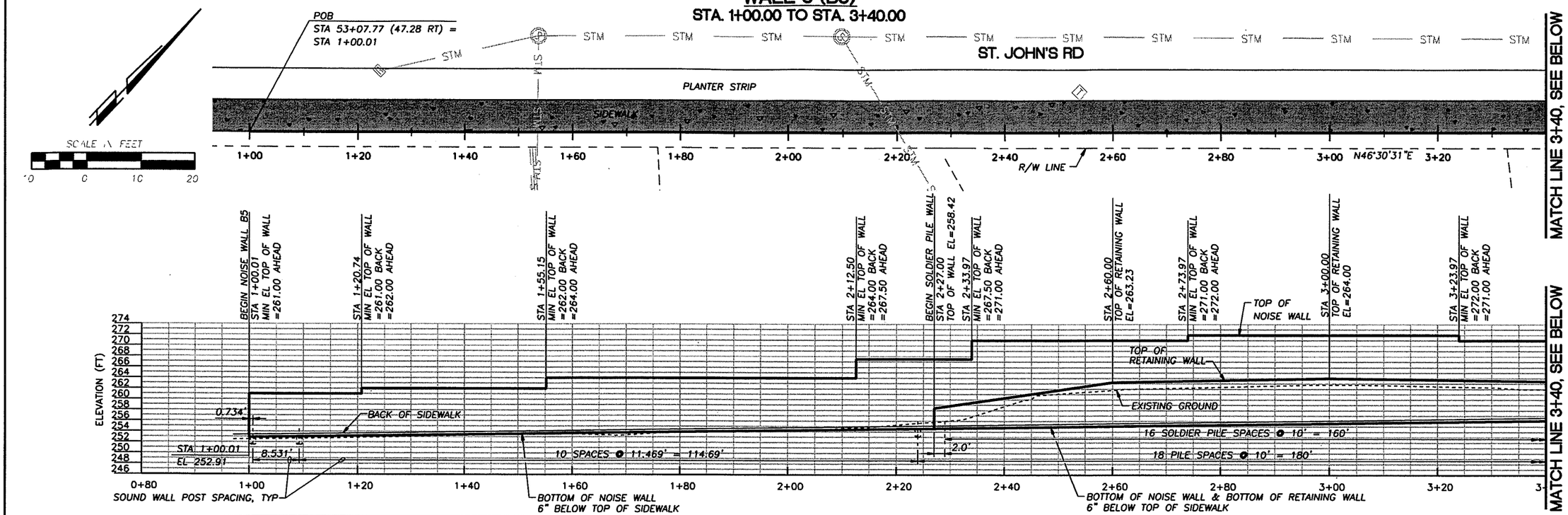
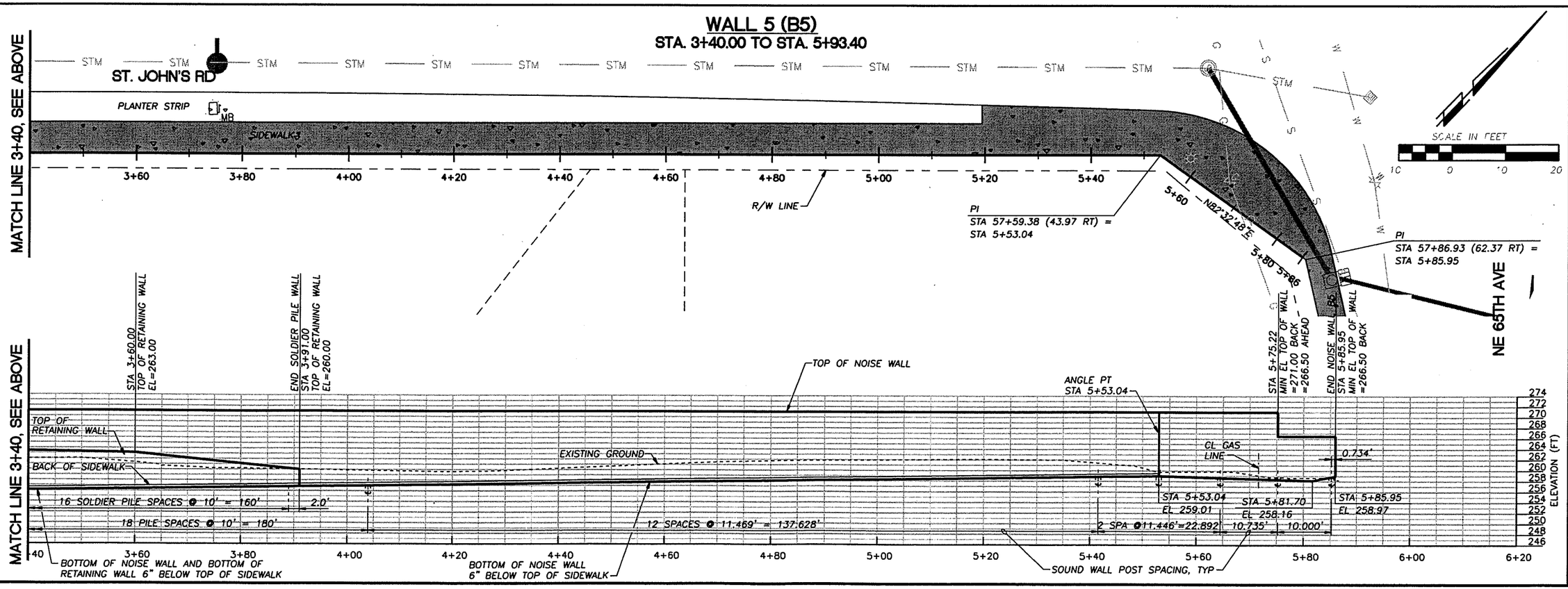
NDM:154083180257wa04.dlv

WALL 5 (B5)
STA. 1+00.00 TO STA. 3+40.00



WALL 5 (B5)
STA. 3+40.00 TO STA. 5+93.40



DESIGNED CEN
DRAWN DLM
CRP 301422
HOR. 1"=10'
VERT. 1"=10'
DATE 10/31/03
DWG: B05
SHEET 5 OF 26

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ST. JOHNS RD. (NE 50TH TO NE 72ND)
NOISE BR./SOLDIER PILE WALL 5

MATCH LINE 3+40, SEE BELOW

MATCH LINE 3+40, SEE ABOVE

EXPIRES 10/29/--

CH2MHILL

CLARK COUNTY WASHINGTON

$$$$usernome$$$$ 31-AUG-2005 15:04:29

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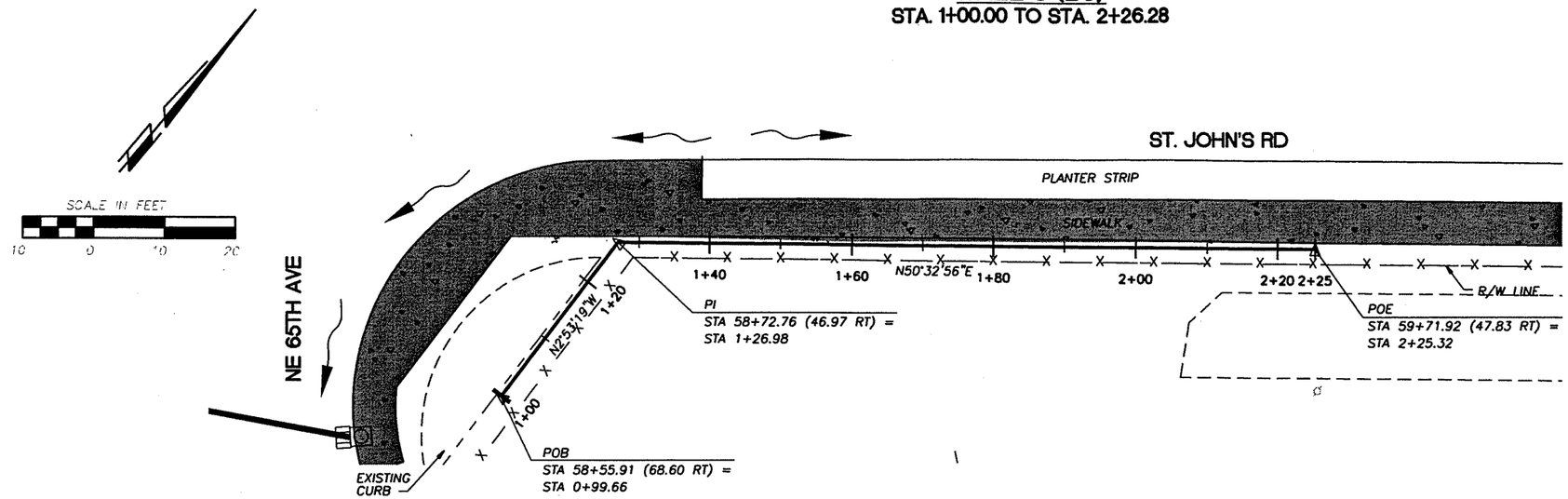
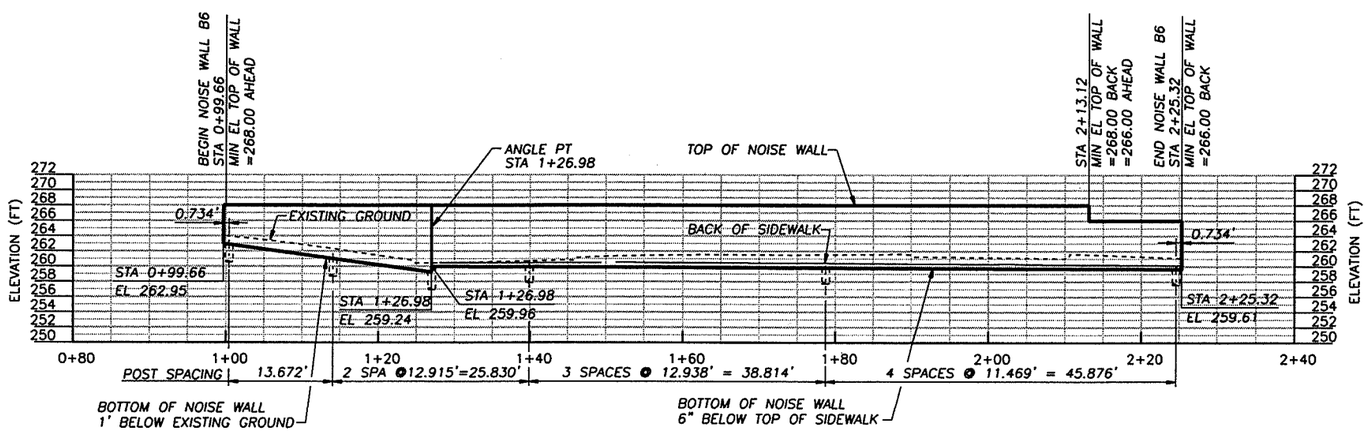
WALL 6 (B6)
STA. 1+00.00 TO STA. 2+26.28





DESIGNED CEN
DRAWN DLM
CRP 301422
HOR. 1"=10'
VERT. 1"=10'
DATE 10/31/03
DWG: B06
SHEET 6 OF 26

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ST. JOHNS RD. (NE 50TH TO NE 72ND)
NOISE BARRIER WALL 6

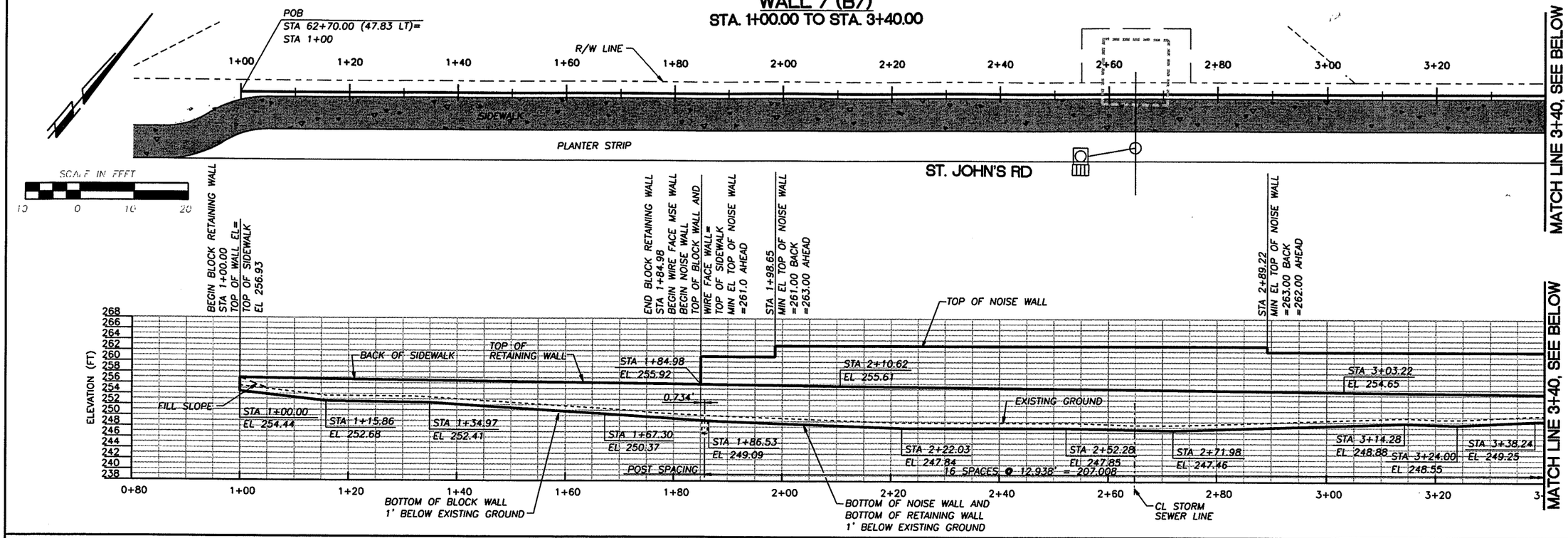
GEORGE T. NELSON
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/--

CH2MHILL

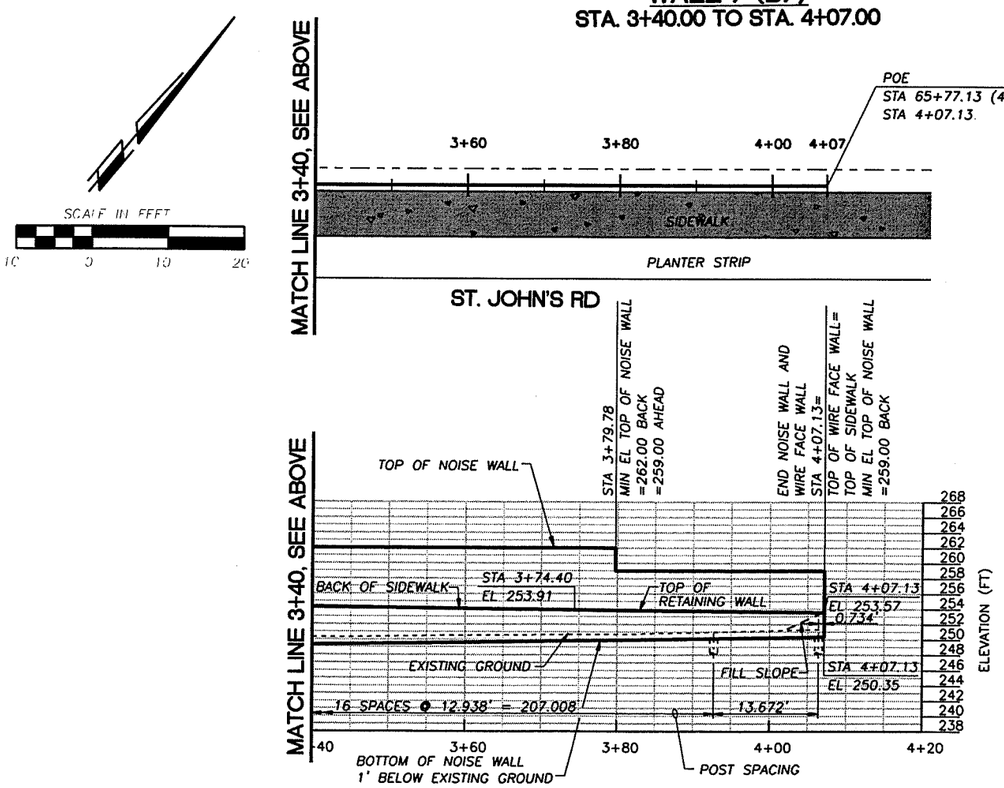
CLARK COUNTY WASHINGTON

$$$$$username$$$$
31-AUG-2005 15:05:09
ND4:154083:80257wo06.dlv

WALL 7 (B7)
STA. 1+00.00 TO STA. 3+40.00



WALL 7 (B7)
STA. 3+40.00 TO STA. 4+07.00



DESIGNED	CEN
DRAWN	DLM
CRP	301422
HOR.	1"=10'
VERT.	1"=10'
DATE	10/31/05
DWG:	B07
SHEET	7OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

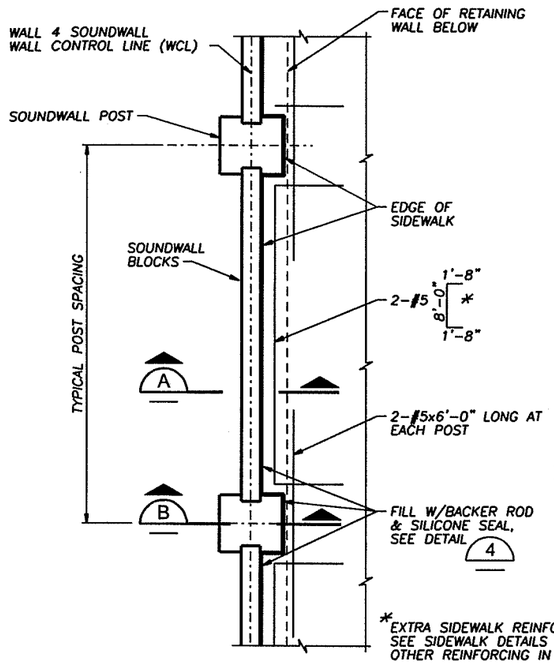
ST. JOHNS RD. (NE 50TH TO NE 72ND)
NOISE BR./STRC. EARTH WALL 7

STATE OF WASHINGTON
CHRIST NELSON
EXPIRES 10/29/...

CH2MHILL

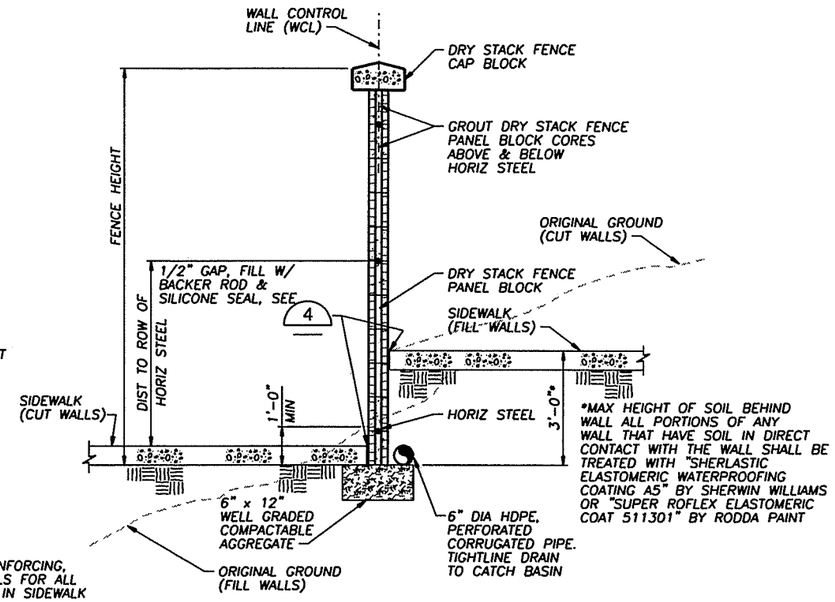
CLARK COUNTY WASHINGTON

$$$$username$$$$
31-AUG-2005 15:07:19
NDM:1540B3180257wa07.dlv



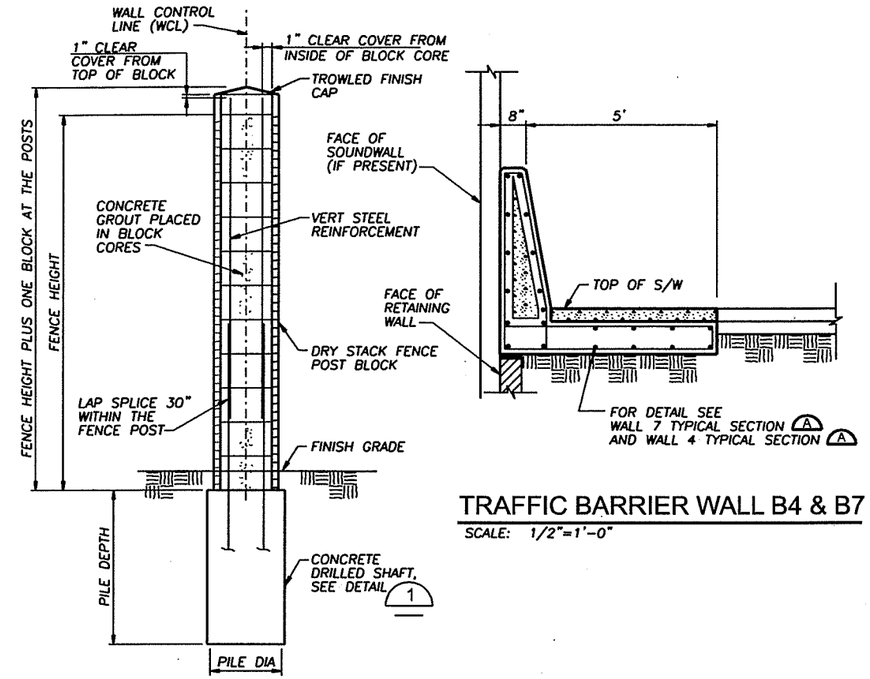
TYPICAL WALL PLAN AT SIDEWALK

1/2"=1'-0"
(SIDEWALK, SOUNDWALL INTERFACE TYPICAL AT ALL WALLS)
(WALLS 3, 5 & 6, OPPOSITE HAND)



TYPICAL SECTION

SCALE: 1/2"=1'-0"
(WALLS 1, 2, 3 & 6)

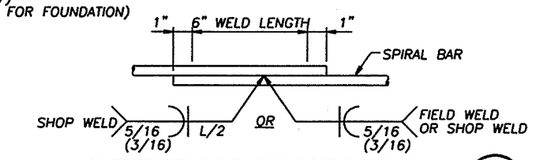


TRAFFIC BARRIER WALL B4 & B7

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

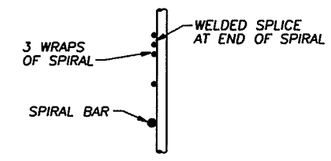
TYPICAL SECTION AT POST

SCALE: 1/2"=1'-0"
(WALL 1, 2, 3, 5, 6 & 7)
(WALL 4 SIMILAR EXCEPT FOR FOUNDATION)



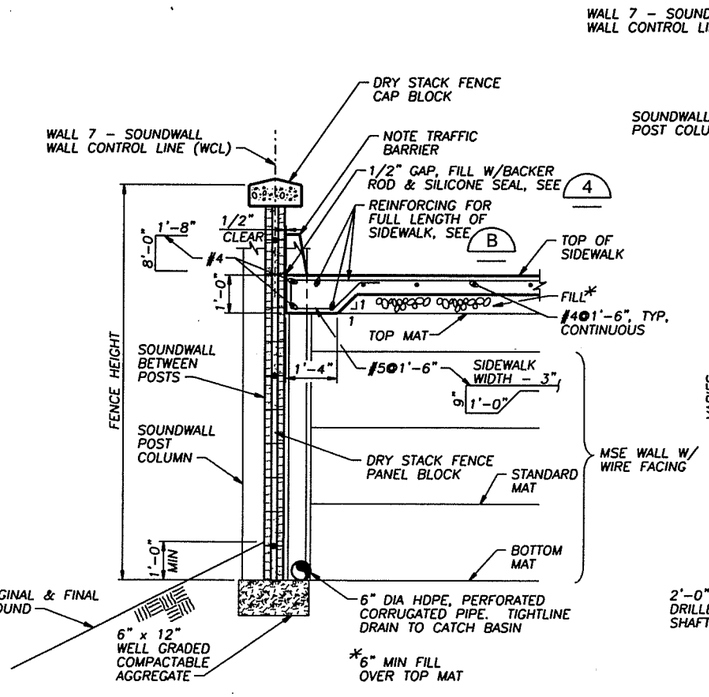
WELDED LAP SPLICE DETAIL 2

3"=1'-0"
WELDING SHALL MEE THE REQUIREMENTS OF STD SPEC 6-02.3(24)E



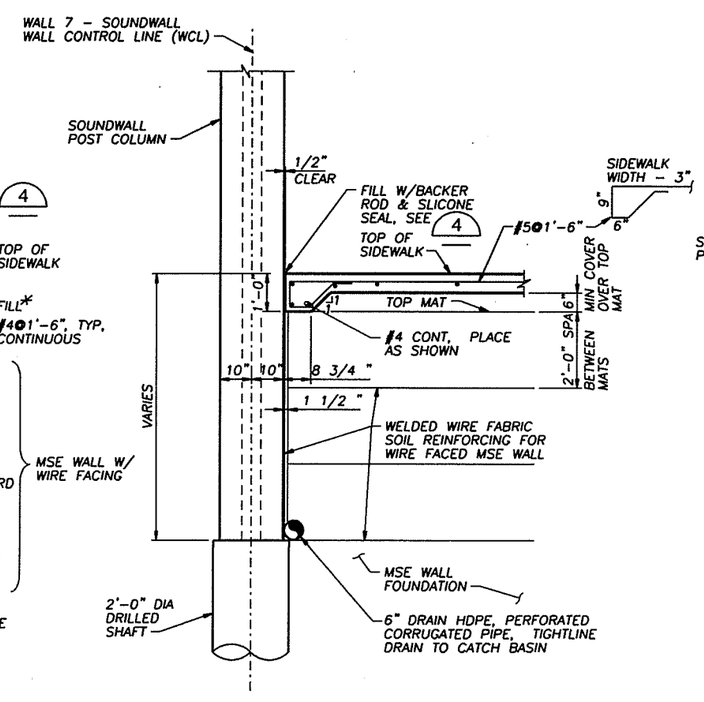
SPIRAL TERMINATION DETAIL 3

3"=1'-0"



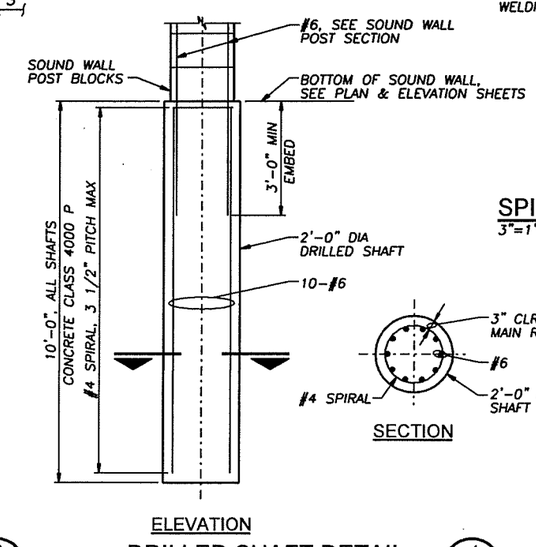
WALL 7 TYPICAL SECTION A

1/2"=1'-0"



WALL 7 SOUNDWALL POST SECTION B

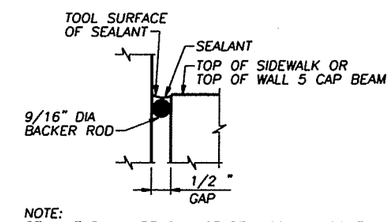
1/2"=1'-0"



ELEVATION

DRILLED SHAFT DETAIL 1

1/2"=1'-0"



NOTE:
SEALANT SHALL BE GUN GRADE, 100% SILICONE, NON-SAG FORMULATION. PRIME CONCRETE SURFACE AS REQUIRED BY SEALANT MANUFACTURER'S WRITTEN INSTRUCTIONS.

SEALANT DETAIL 4

NO SCALE

B09, B10

DESIGNED CEN
DRAWN DLM
CRP 301422
HOR. 1/2"=1'-0"
VERT. 1/2"=1'-0"
DATE 10/31/03
DWG: B08
SHEET 8 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

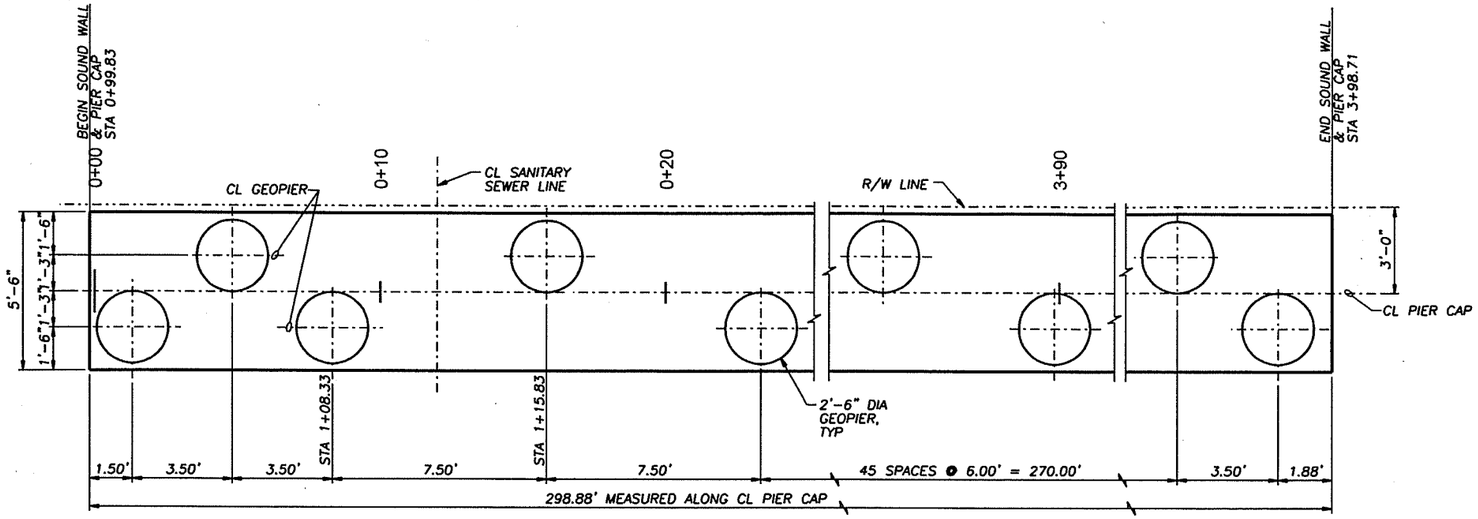
ST. JOHNS RD. (NE 50TH TO NE 72ND)
WALL SECTIONS 1

CHERYL A. NELSON STATE OF WASHINGTON 13599 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/...

CH2MHILL

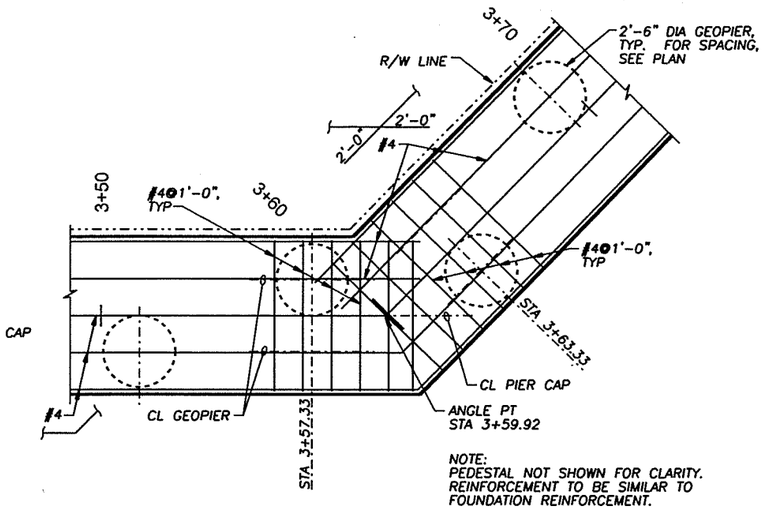
CLARK COUNTY WASHINGTON

31-AUG-2005 14:39:39
$$$$username$$$$
NDM:1540B3180257xs01.dlv



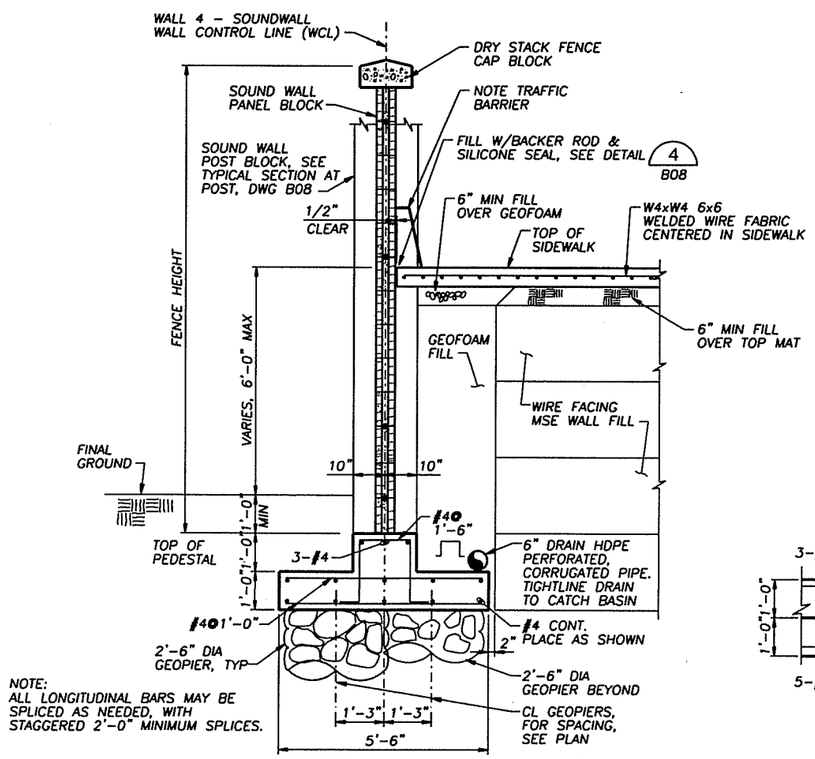
NOTE:
FOR ANGLE POINT NOT SHOWN, SEE ANGLE POINT FOOTING PLAN.

WALL 4 ENLARGED FOOTING PLAN
3/8"=1'-0"



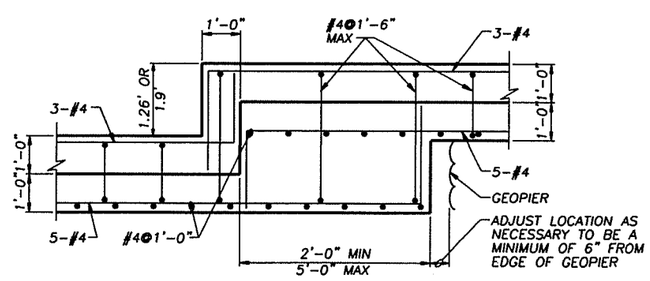
NOTE:
PEDESTAL NOT SHOWN FOR CLARITY. REINFORCEMENT TO BE SIMILAR TO FOUNDATION REINFORCEMENT.

WALL 4 ANGLE POINT FOOTING PLAN
3/8"=1'-0"



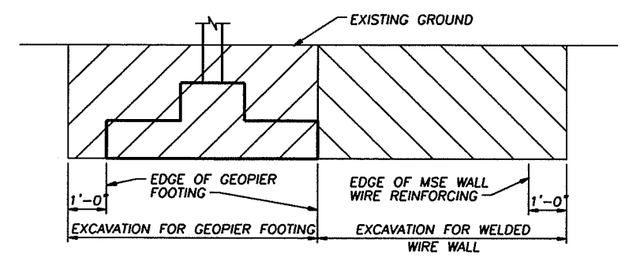
NOTE:
ALL LONGITUDINAL BARS MAY BE SPLICED AS NEEDED, WITH STAGGERED 2'-0" MINIMUM SPLICES.

WALL 4 TYPICAL SECTION A
1/2"=1'-0"



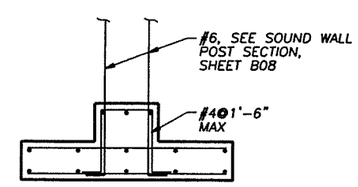
ELEVATION

WALL 4 FOOTING AND PEDESTAL STEP DETAIL 1
1/2"=1'-0"



ELEVATION

EXCAVATION LIMITS DIAGRAM 2
1/2"=1'-0"
(WALL 4 SHOWN, WALL 7 SIMILAR W/O GEOPIER FOOTING)



WALL 4 TYPICAL SECTION AT POST
1/2"=1'-0"

DESIGNED CEN
DRAWN DLM
CRP 301422
HOR. 1/2"=1'-0"
VERT. 1/2"=1'-0"
DATE 10/31/03
DWG: B09
SHEET 9 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

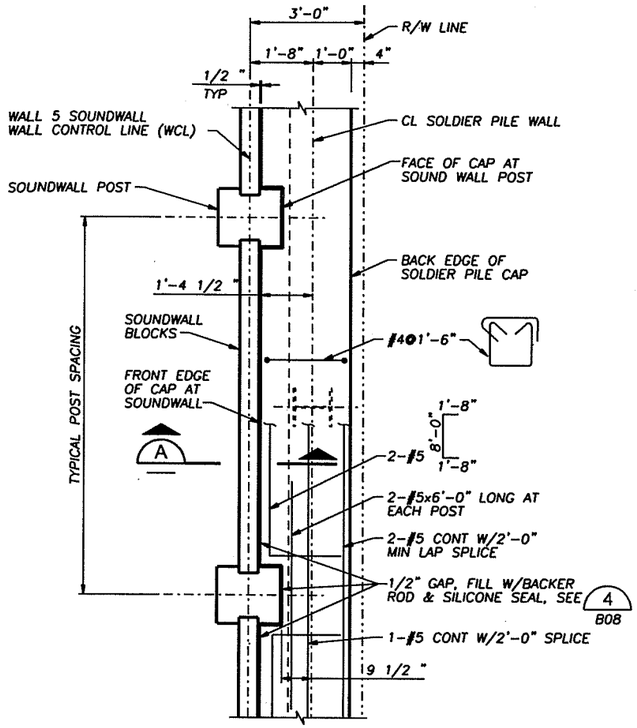
ST. JOHNS RD. (NE 50TH TO NE 72ND)
WALL SECTIONS 2

CHARLES NELSON WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER 17379
EXPIRES 10/29/...

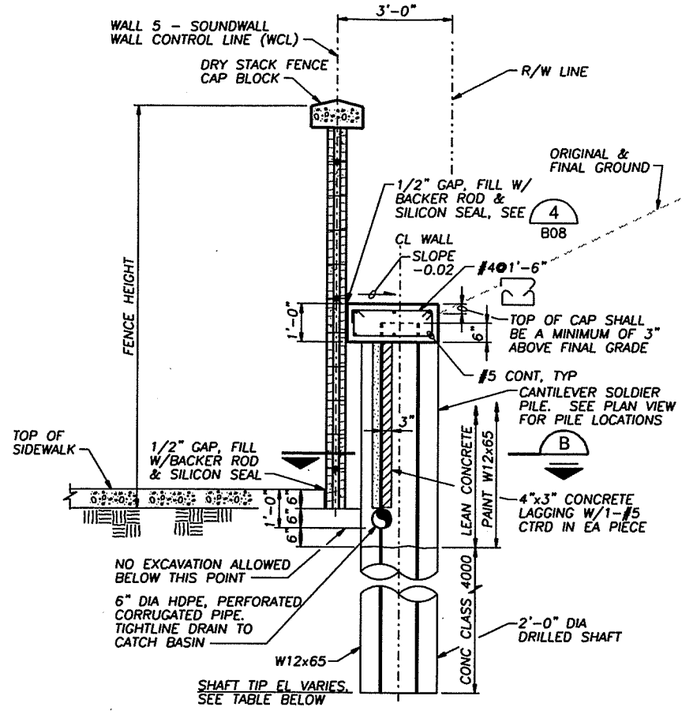
CH2MHILL

CLARK COUNTY WASHINGTON

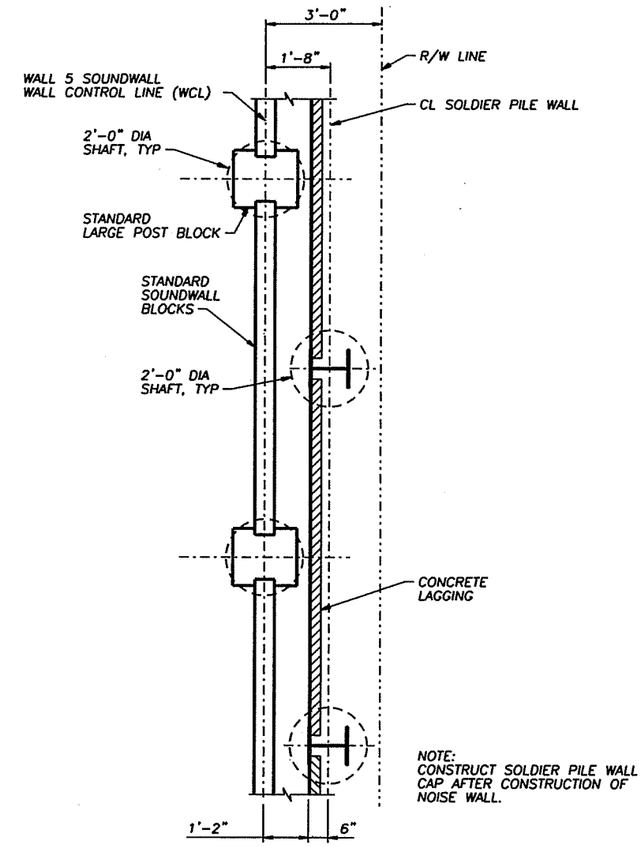
$$$$username$$$$ 31-AUG-2005 14:42:13
NDM:1540831802257xs02.dlv



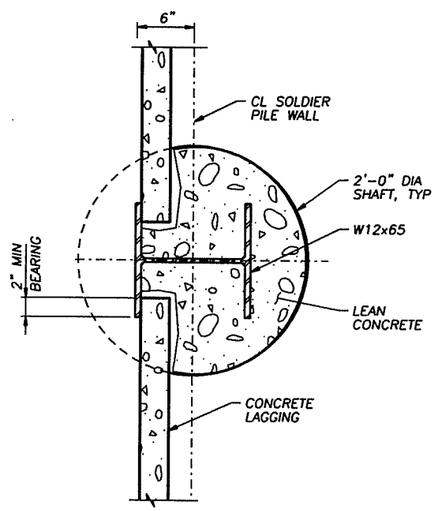
WALL 5 TOP PLAN - SOLDIER PILE CAP
1/2"=1'-0"



WALL 5 TYPICAL SECTION A
1/2"=1'-0"



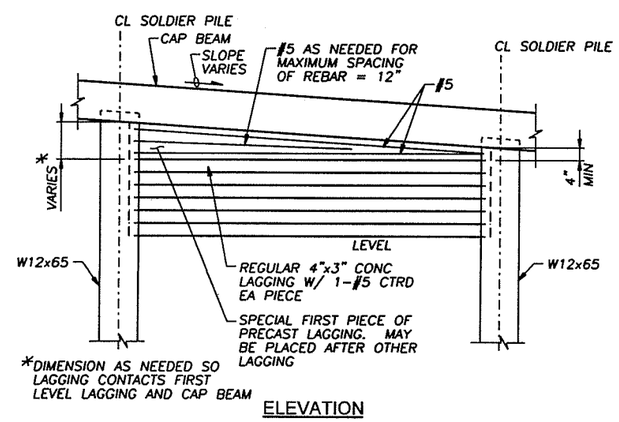
SOLDIER PILE WALL & SOUNDWALL SECTION B
1/2"=1'-0"



SOLDIER PILE DETAIL 1
1 1/2"=1'-0"

SOLDIER PILE LOCATION

STATION (FT.)	EMBED BELOW FINISH GRADE (FT.)
2+29.00	9
2+39.00	12
2+49.00	15
2+59.00	15
2+69.00	15
2+79.00	15
2+89.00	15
2+99.00	15
3+09.00	15
3+19.00	15
3+29.00	15
3+39.00	15
3+49.00	15
3+59.00	15
3+69.00	15
3+79.00	12
3+89.00	9



ELEVATION

LAGGING DETAIL 2
1/2"=1'-0"

DESIGNED CEN
DRAWN DLM
CRP 301422
HOR. 1/2"=1'-0"
VERT. 1/2"=1'-0"
DATE 10/31/03
DWG: B10
SHEET 10 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITY NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

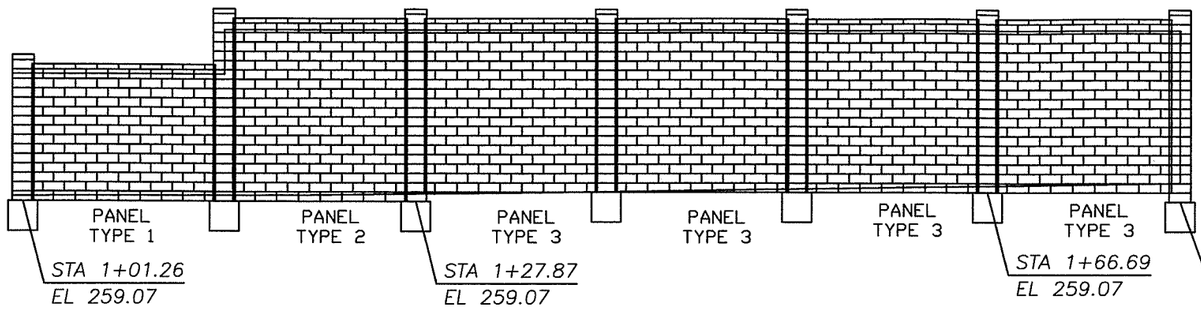
ST. JOHNS RD. (NE 50TH TO NE 72ND) WALL SECTIONS 3

CHARLES E. PETERSON STATE OF WASHINGTON 13344 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/...

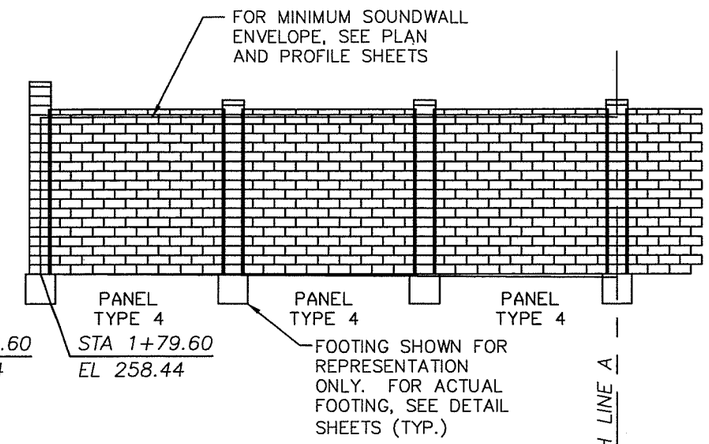
CH2MHILL

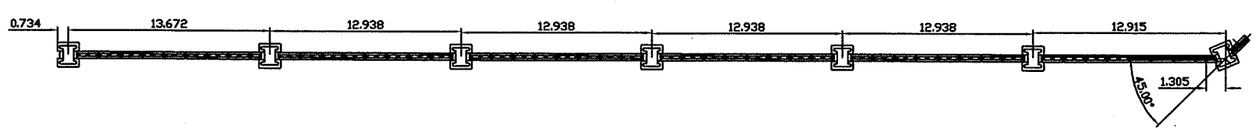
CLARK COUNTY WASHINGTON

NDM:1540833180257xs03.dlv 31-AUG-200514:50:12 $$$$username$$$$

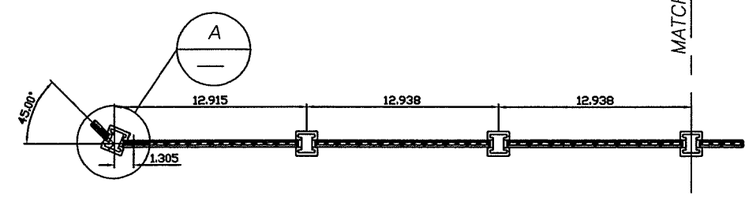


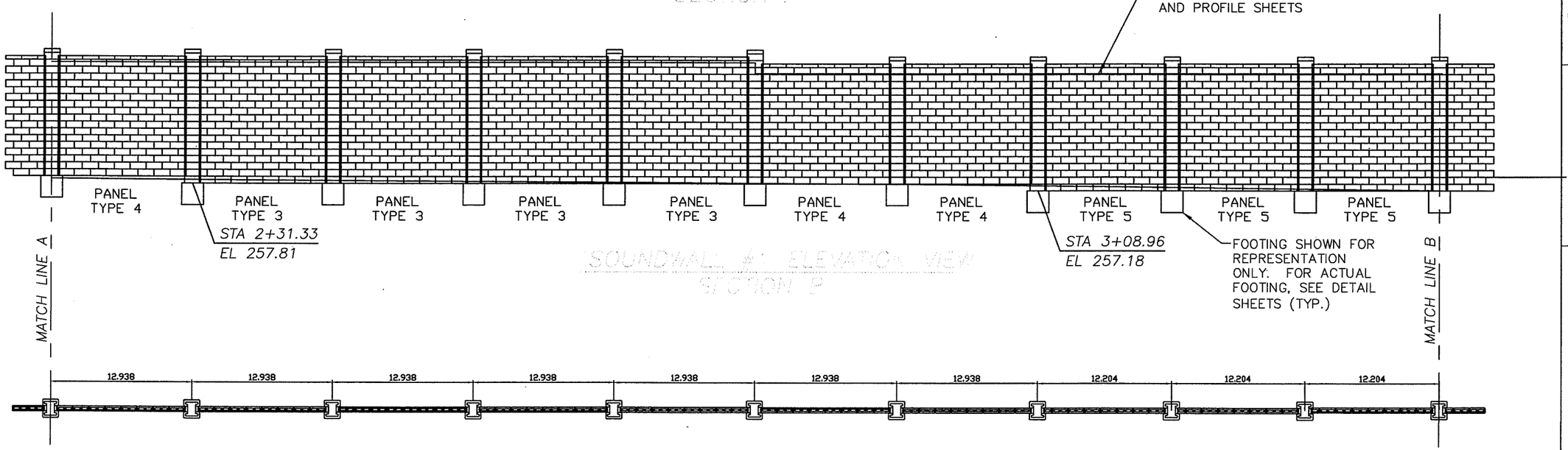
SOUNDWALL #1 ELEVATION VIEW
SECTION A





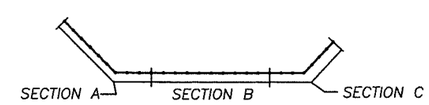
SOUNDWALL #1 PLAN VIEW
SECTION A





SOUNDWALL #1 ELEVATION VIEW
SECTION B

SOUNDWALL #1 PLAN VIEW
SECTION B



SOUNDWALL #1 KEYPLAN

DESIGNED AB/CEN
DRAWN AB/DLM
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG: B11
SHEET 11 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

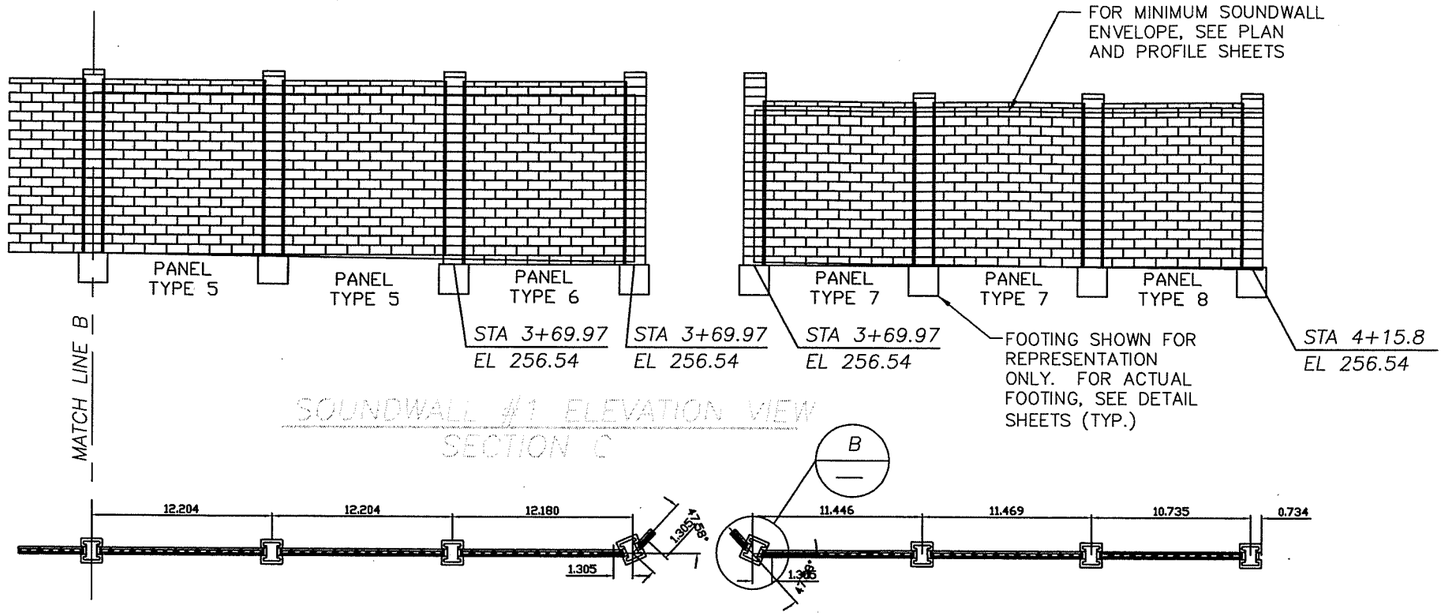
SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #1

CHARLES H. NELSON
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CLARK COUNTY WASHINGTON

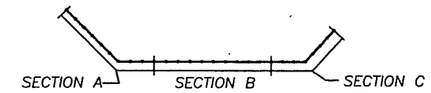
AUG-31-2005 08:42:26

NDM:180257: ABWall 1.dwg

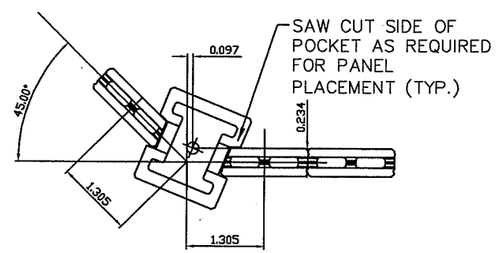


SOUNDWALL #1 ELEVATION VIEW
SECTION C

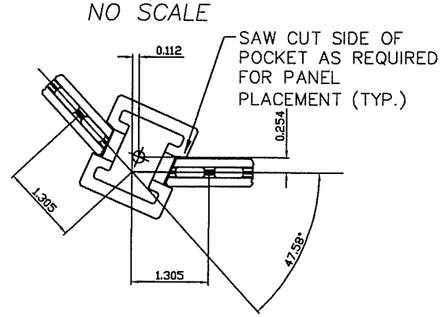
SOUNDWALL #1 PLAN VIEW
SECTION C



SOUNDWALL #1 KEYPLAN



A
CORNER POST DETAIL
NO SCALE



B
CORNER POST DETAIL
NO SCALE

ALLAN BLOCK FENCE PANEL TYPE TABLE

PANEL TYPE	PANEL LENGTH, BLOCK	PANEL HEIGHT, BLOCK	POST REINFORCEMENT	BOND BEAM REINFORCEMENT	BOND BEAM REINFORCEMENT LOCATION, COURSE #
TYPE 1	8.5 PANEL BLOCK	14 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13
TYPE 2	8 PANEL BLOCK	19 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18
TYPE 3	8 PANEL BLOCK	18 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 12, 17
TYPE 4	8 PANEL BLOCK	17 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 6, 11, 16
TYPE 5	7.5 PANEL BLOCK	18 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 12, 17
TYPE 6	7.5 PANEL BLOCK	19 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18
TYPE 7	7 PANEL BLOCK	17 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 6, 11, 16
TYPE 8	6.5 PANEL BLOCK	17 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 6, 11, 16

DESIGNED AB/CEN
DRAWN AB/DLM
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG. B12
SHEET 12 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

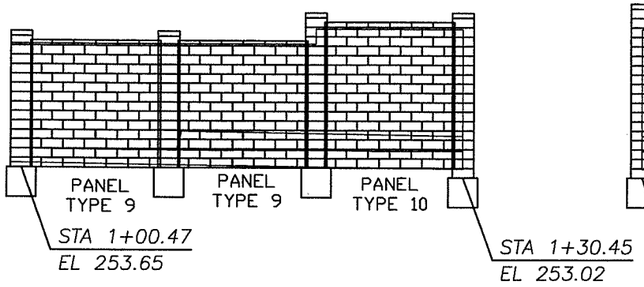
DESIGN & ENGINEERING DIVISION

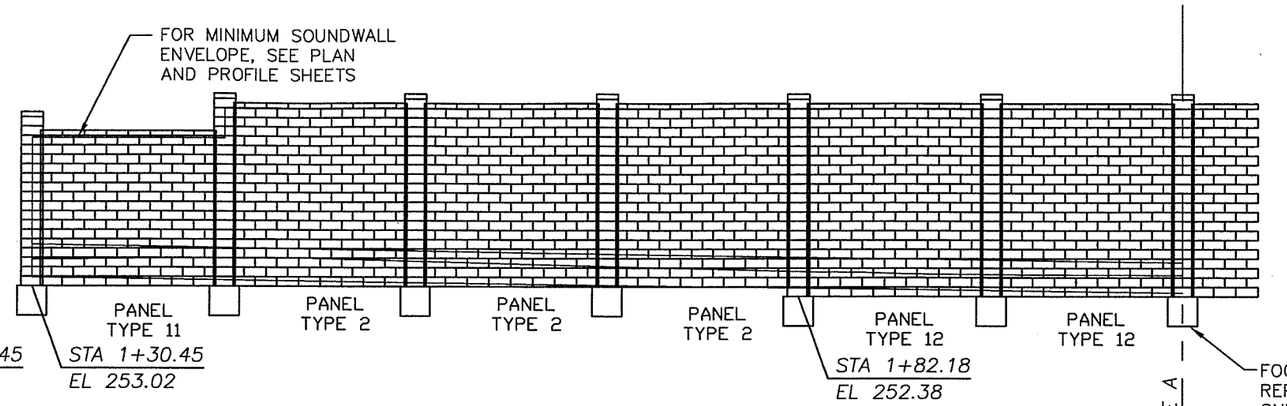
SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #1

CHRISTOPHER J. NELSON STATE OF WASHINGTON 37378 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

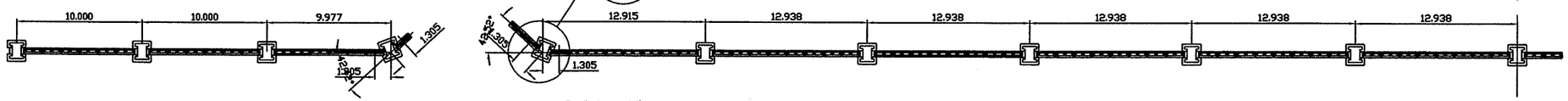
CLARK COUNTY WASHINGTON

NDM:180257: ABWall 1.dwg AUG-31-2005 08:42:28

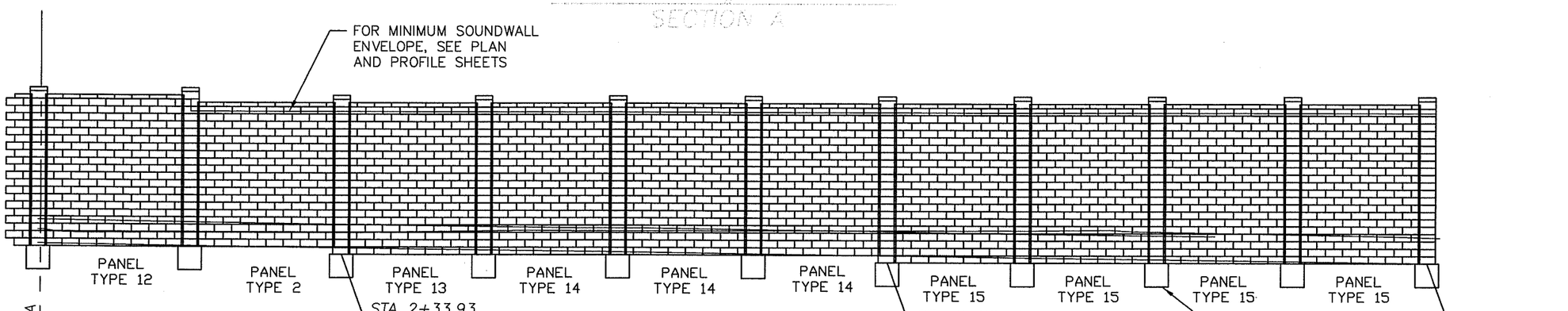




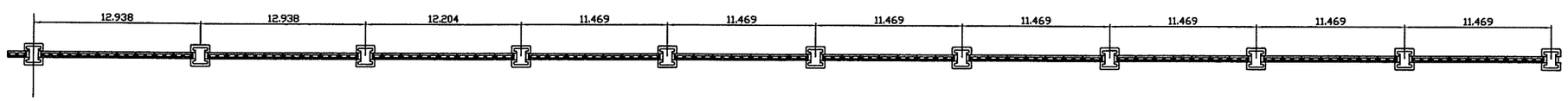
SOUNDWALL #2 ELEVATION VIEW
SECTION A



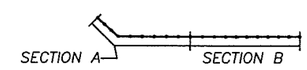
SOUNDWALL #2 PLAN VIEW
SECTION A



SOUNDWALL #2 ELEVATION VIEW
SECTION B



SOUNDWALL #2 PLAN VIEW
SECTION B



SOUNDWALL #2 KEYPLAN

DESIGNED AB/CEN
DRAWN AB/DLM
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG: B13
SHEET 13 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #2

CERTIFIED PROFESSIONAL ENGINEER STATE OF WASHINGTON
EXPIRES 10/29/

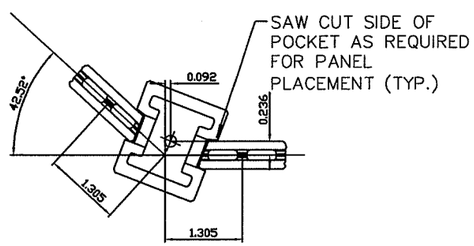
CLARK COUNTY WASHINGTON

AUG-31-2005 08:42:26

NDM:180257:ABWALL 2.DWG

ALLAN BLOCK FENCE PANEL TYPE TABLE

PANEL TYPE	PANEL LENGTH, BLOCK	PANEL HEIGHT, BLOCK	POST REINFORCEMENT	BOND BEAM REINFORCEMENT	BOND BEAM REINFORCEMENT LOCATION, COURSE #
TYPE 2	8 PANEL BLOCK	19 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18
TYPE 9	6 PANEL BLOCK	13 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 12
TYPE 10	6 PANEL BLOCK	15 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14
TYPE 11	8 PANEL BLOCK	16 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15
TYPE 12	8 PANEL BLOCK	20 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19
TYPE 13	7.5 PANEL BLOCK	20 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19
TYPE 14	7 PANEL BLOCK	20 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19
TYPE 15	7 PANEL BLOCK	21 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14, 20



A — CORNER POST DETAIL

NO SCALE

DESIGNED AB/CEN
DRAWN AB/DLM
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG: B14
SHEET 14 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #2

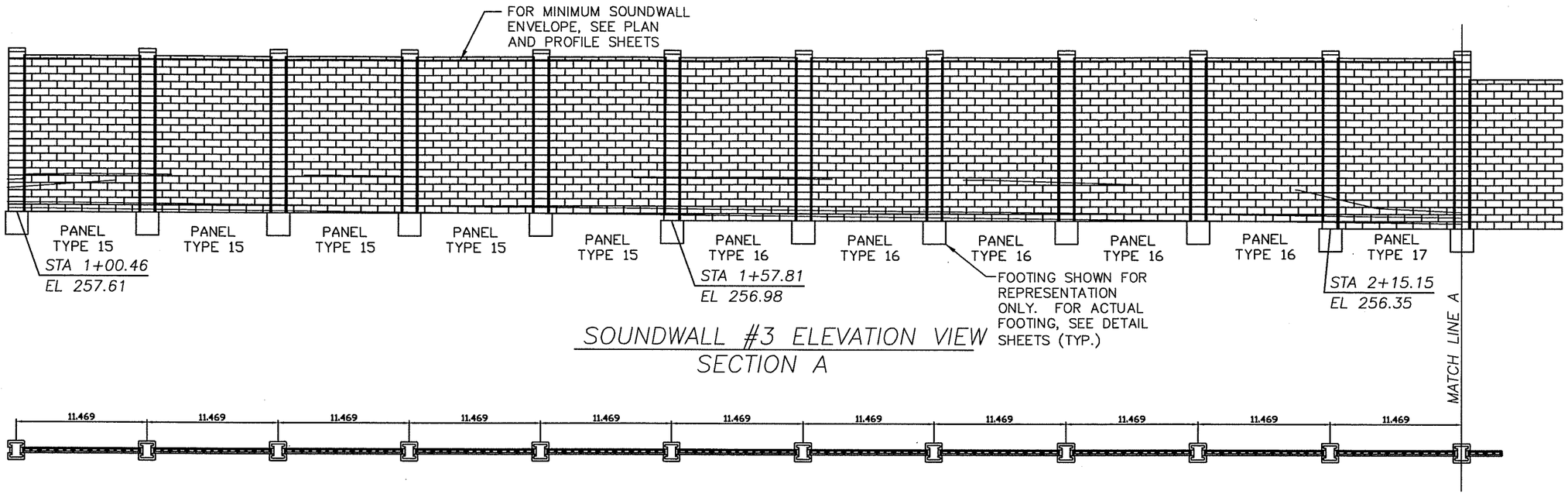
STATE OF WASHINGTON CHRISTOPHER A. NELSON 37798 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CH2MHILL

CLARK COUNTY WASHINGTON

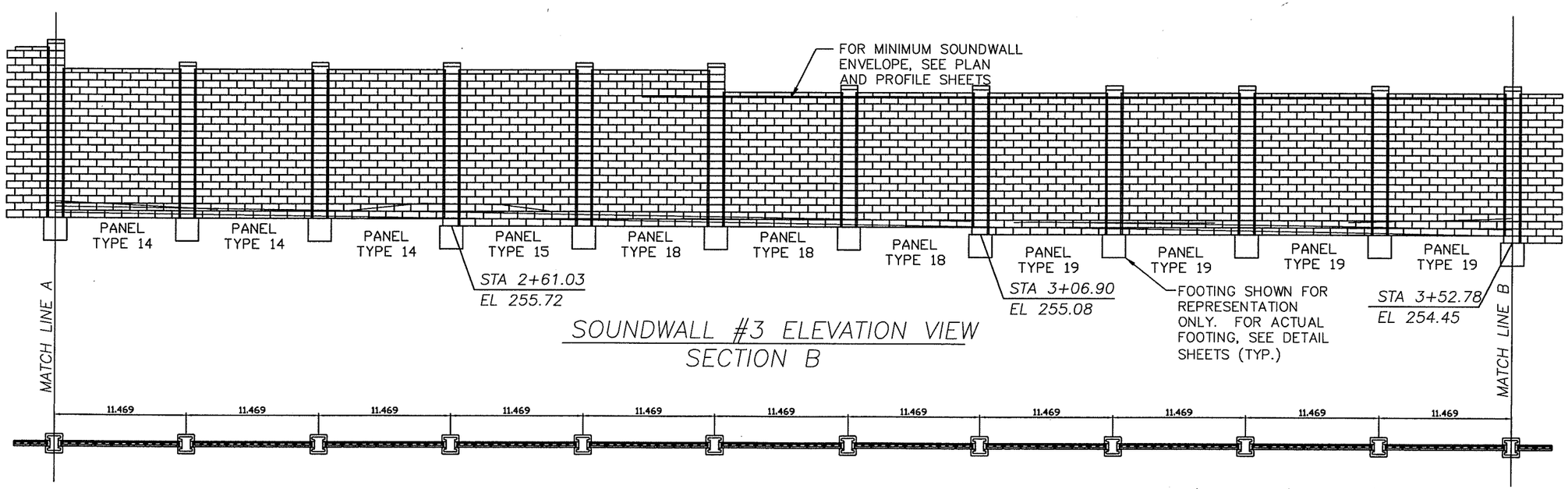
AUG-31-2005 08:42:26

NDM:1802257: ABWall 2.dwg



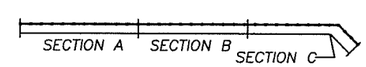
SOUNDWALL #3 ELEVATION VIEW
SECTION A

SOUNDWALL #3 PLAN VIEW
SECTION A



SOUNDWALL #3 ELEVATION VIEW
SECTION B

SOUNDWALL #3 PLAN VIEW
SECTION B



SOUNDWALL #3 KEYPLAN

DESIGNED Engineer
DRAWN Drawn
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG: BXX
SHEET 11 OF XX

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

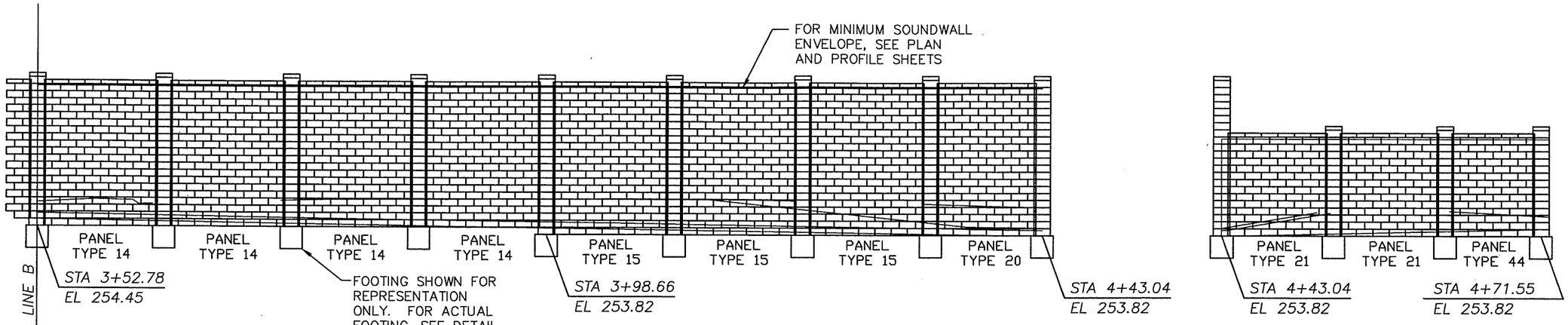
SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #3

GENE S. NELSON STATE OF WASHINGTON 15824 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

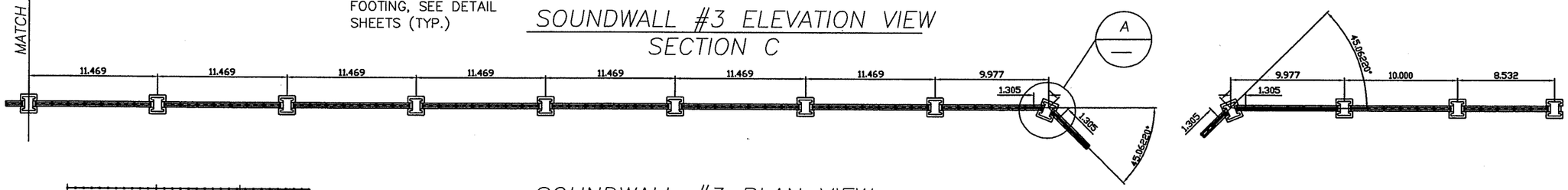
CLARK COUNTY WASHINGTON

AUG-31-2005 08:42:28

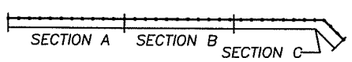
NDM:190257: ABborder.mat



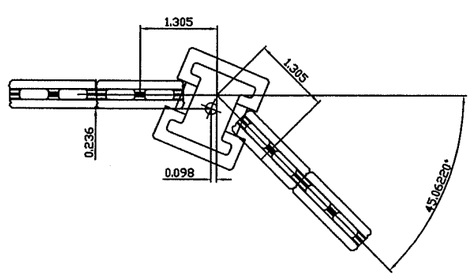
SOUNDWALL #3 ELEVATION VIEW
SECTION C



SOUNDWALL #3 PLAN VIEW
SECTION C



SOUNDWALL #3 KEYPLAN



A — CORNER POST DETAIL
NO SCALE

ALLAN BLOCK FENCE PANEL TYPE TABLE

PANEL TYPE	PANEL LENGTH, BLOCK	PANEL HEIGHT, BLOCK	POST REINFORCEMENT	BOND BEAM REINFORCEMENT	BOND BEAM REINFORCEMENT LOCATION, COURSE #
TYPE 14	7 PANEL BLOCK	20 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19
TYPE 15	7 PANEL BLOCK	21 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14, 20
TYPE 16	7 PANEL BLOCK	22 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15, 21
TYPE 17	7 PANEL BLOCK	23 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15, 22
TYPE 18	7 PANEL BLOCK	18 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18
TYPE 19	7 PANEL BLOCK	19 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19
TYPE 20	6 PANEL BLOCK	21 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14, 20
TYPE 21	6 PANEL BLOCK	14 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13
TYPE 44	5 PANEL BLOCK	14 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13

DESIGNED/Engineer
DRAWN Drawn
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG: BXX
SHEET 11 OF XX

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

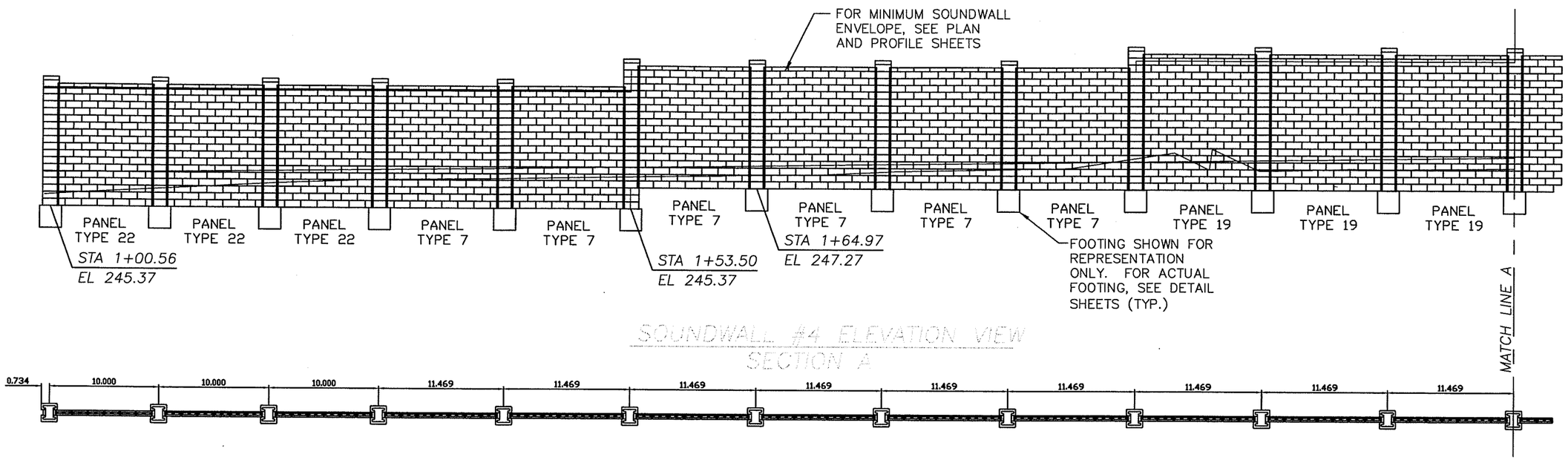
DESIGN & ENGINEERING DIVISION

SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #3

STATE OF WASHINGTON GERALD ST. NELSON 13799 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

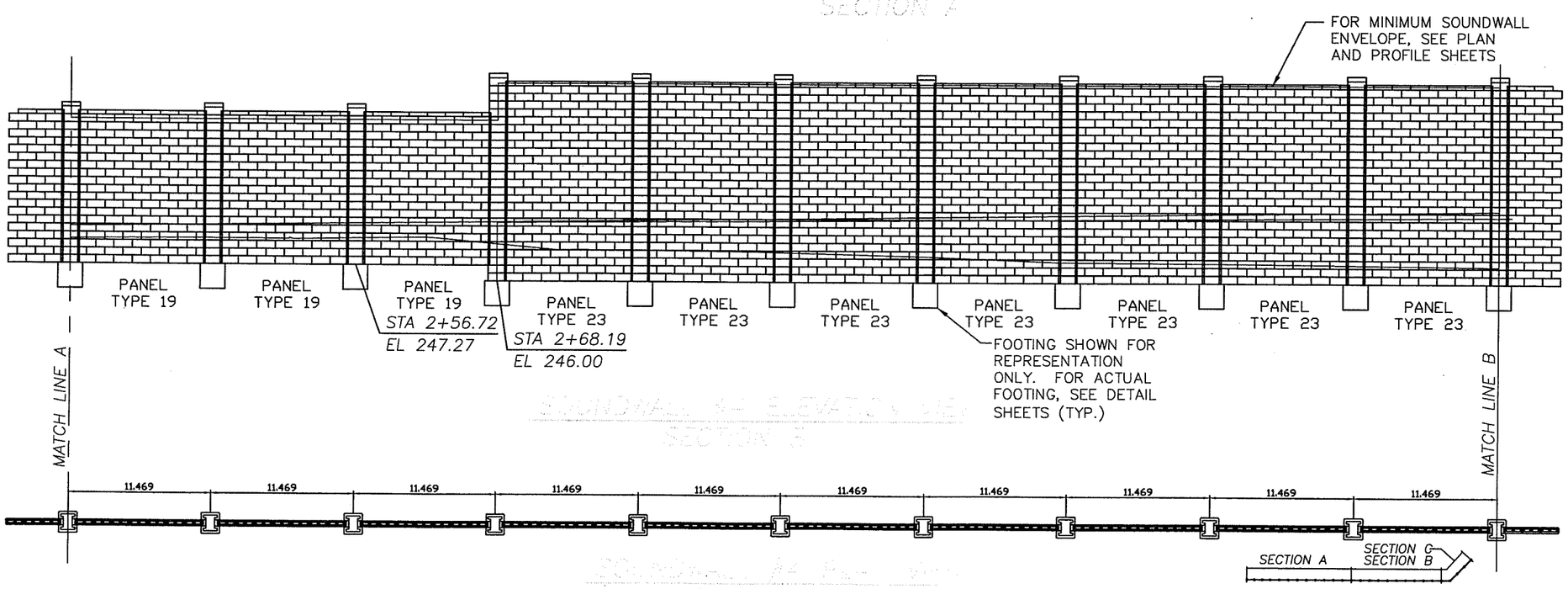
CLARK COUNTY WASHINGTON

NDM:180257: ABborder.mat AUG-31-2005 08:42:26



SOUNDWALL #4 ELEVATION VIEW
SECTION A

SOUNDWALL #4 PLAN VIEW
SECTION F



SOUNDWALL #4 KEYPLAN

DESIGNED Engineer
DRAWN Drawn
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG. B17
SHEET 17 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #4

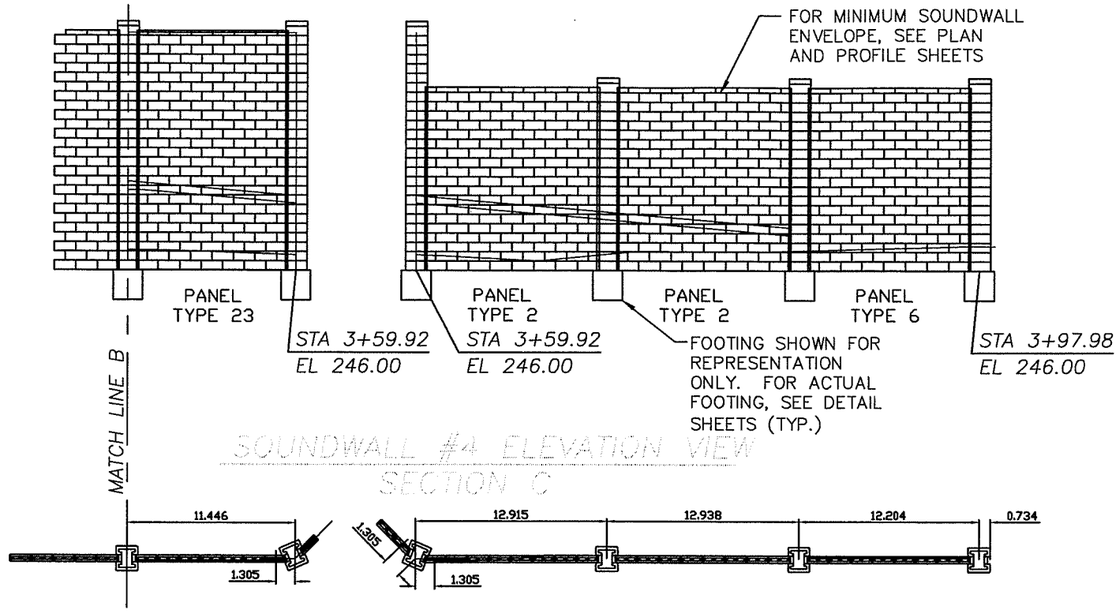
GARY S. NELSON STATE OF WASHINGTON 17964 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/—

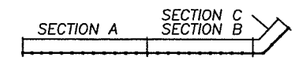
CH2MHILL

CLARK COUNTY WASHINGTON

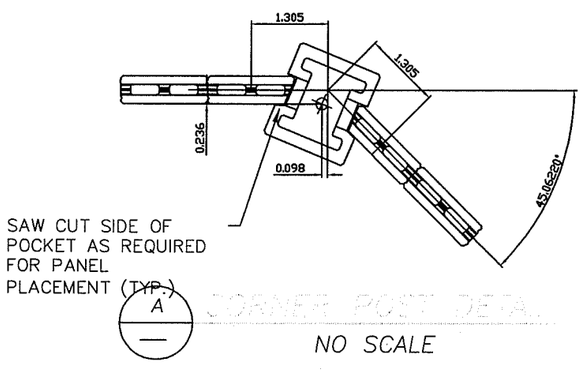
AUG-31-2005 08:42:26

NDM:180257: ABWall 4a.dwg





SOUNDWALL #4 KEYPLAN



ALLAN BLOCK FENCE PANEL TYPE TABLE

PANEL TYPE	PANEL LENGTH, BLOCK	PANEL HEIGHT, BLOCK	POST REINFORCEMENT	BOND BEAM REINFORCEMENT	BOND BEAM REINFORCEMENT LOCATION, COURSE #
TYPE 2	8 PANEL BLOCK	19 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18
TYPE 6	7.5 PANEL BLOCK	19 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18
TYPE 7	7 PANEL BLOCK	17 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 6, 11, 16
TYPE 19	7 PANEL BLOCK	19 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18
TYPE 22	6 PANEL BLOCK	17 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 6, 11, 16
TYPE 23	7 PANEL BLOCK	25 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19, 24

DESIGNED Engineer
DRAWN Drawn
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG. B18
SHEET 18 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #4

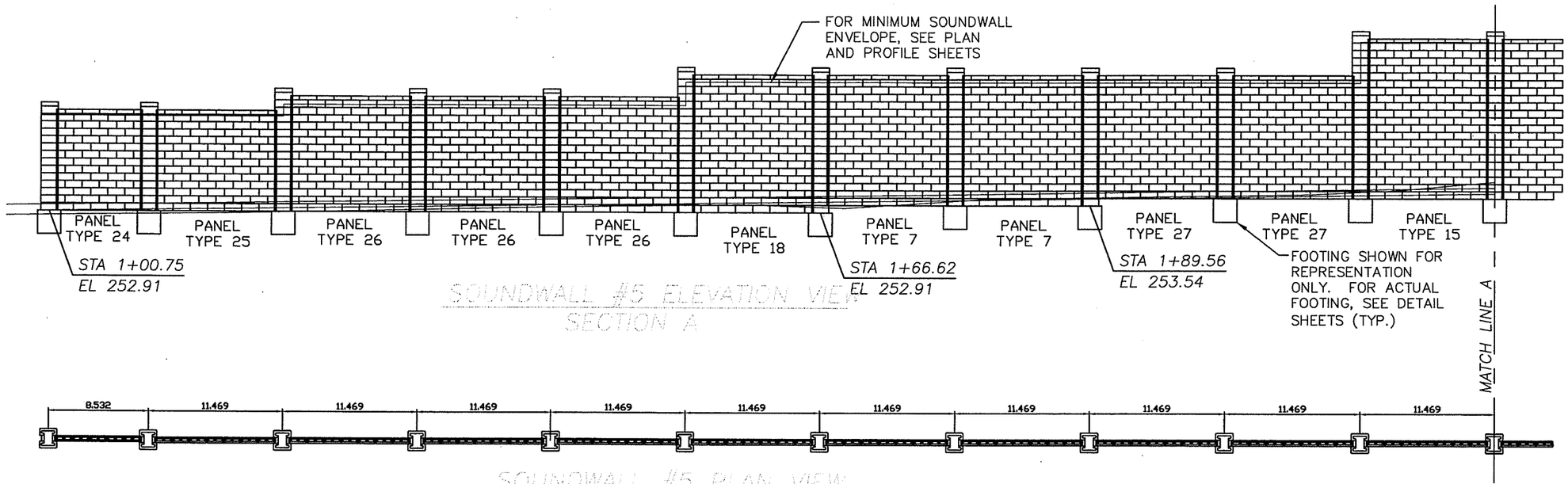
STATE OF WASHINGTON CHERYL NELSON 13719 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CHERYL

CLARK COUNTY WASHINGTON

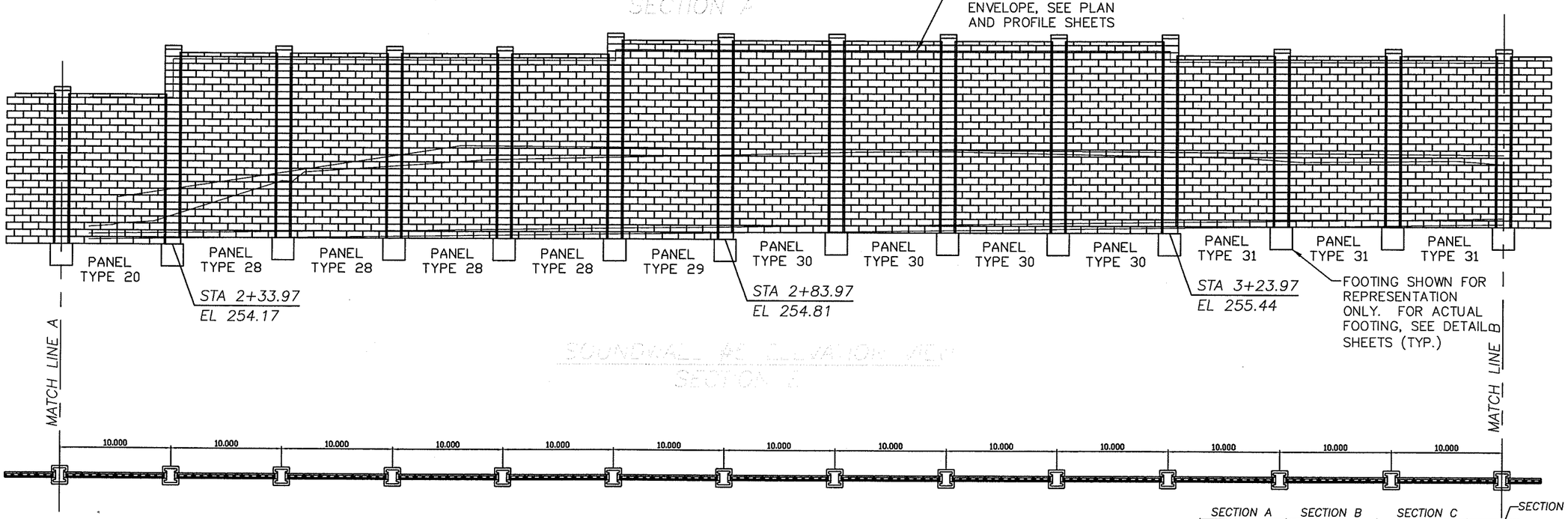
AUG-31-2005 08:42:26

NDM:180257: ABWall 4.dwg



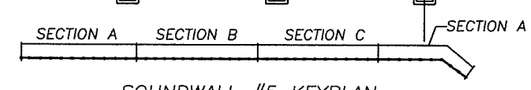
SOUNDWALL #5 ELEVATION VIEW
SECTION A

SOUNDWALL #5 PLAN VIEW
SECTION A



SOUNDWALL #5 ELEVATION VIEW
SECTION B

SOUNDWALL #5 PLAN VIEW
SECTION B



SOUNDWALL #5 KEYPLAN

DESIGNED/Engineer	
DRAWN	Drawn
CRP	301422
HOR.	1"=10'-0"
VERT.	1"=10'-0"
DATE	10-22-03
DWG.	B19
SHEET	19 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #5

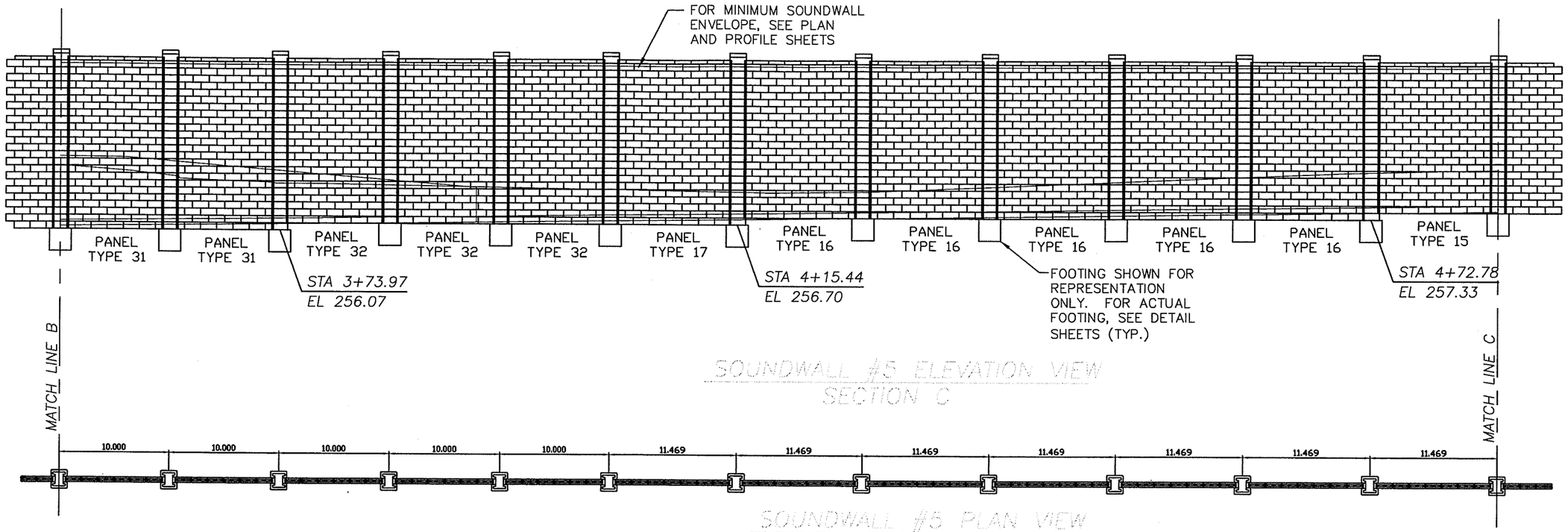
STATE OF WASHINGTON
JAMES S. NELSON
13826
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

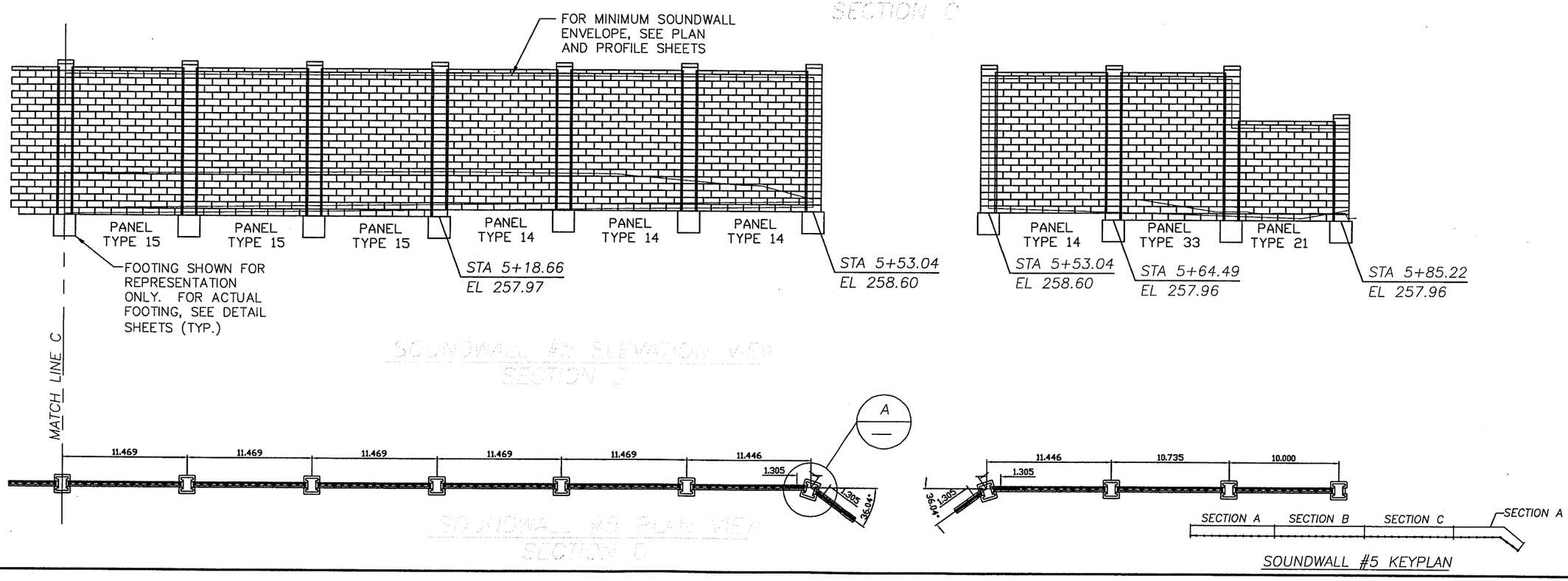
CH2MHILL

CLARK COUNTY WASHINGTON

AUG-31-2005 08:42:26

NDM:180257: ABWall 5.dwg





DESIGNED Engineer
DRAWN Drawn
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG: B20
SHEET 20 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #5

CLARK COUNTY WASHINGTON

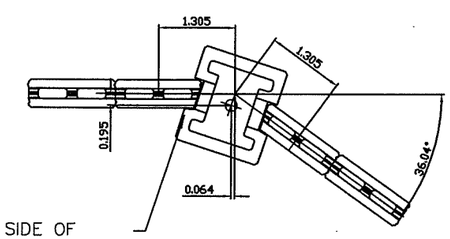
EXPIRES 10/29/__

AUG-31-2005 08:42:26

NDM:180257: ABWall 5.dwg

ALLAN BLOCK FENCE PANEL TYPE TABLE

PANEL TYPE	PANEL LENGTH, BLOCK	PANEL HEIGHT, BLOCK	POST REINFORCEMENT	BOND BEAM REINFORCEMENT	BOND BEAM REINFORCEMENT LOCATION, COURSE #
TYPE 7	7 PANEL BLOCK	17 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 6, 11, 16
TYPE 14	7 PANEL BLOCK	20 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19
TYPE 15	7 PANEL BLOCK	21 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14, 20
TYPE 16	7 PANEL BLOCK	22 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15, 21
TYPE 17	7 PANEL BLOCK	23 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15, 22
TYPE 18	7 PANEL BLOCK	18 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 12, 17
TYPE 20	6 PANEL BLOCK	21 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14, 20
TYPE 21	6 PANEL BLOCK	14 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13
TYPE 24	5 PANEL BLOCK	13 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 12
TYPE 25	7 PANEL BLOCK	13 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 12
TYPE 26	7 PANEL BLOCK	15 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14
TYPE 27	7 PANEL BLOCK	16 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15
TYPE 28	6 PANEL BLOCK	26 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19, 25
TYPE 29	6 PANEL BLOCK	28 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15, 21, 27
TYPE 30	6 PANEL BLOCK	27 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14, 20, 26
TYPE 31	6 PANEL BLOCK	24 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18, 23
TYPE 32	6 PANEL BLOCK	23 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15, 22
TYPE 33	6.5 PANEL BLOCK	21 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14, 20



SAW CUT SIDE OF POCKET AS REQUIRED FOR PANEL PLACEMENT (TYP.)

A

CORNER POST DETAIL

NO SCALE

DESIGNED Engineer
DRAWN Drawn
CKD 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG. B21
SHEET 21 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

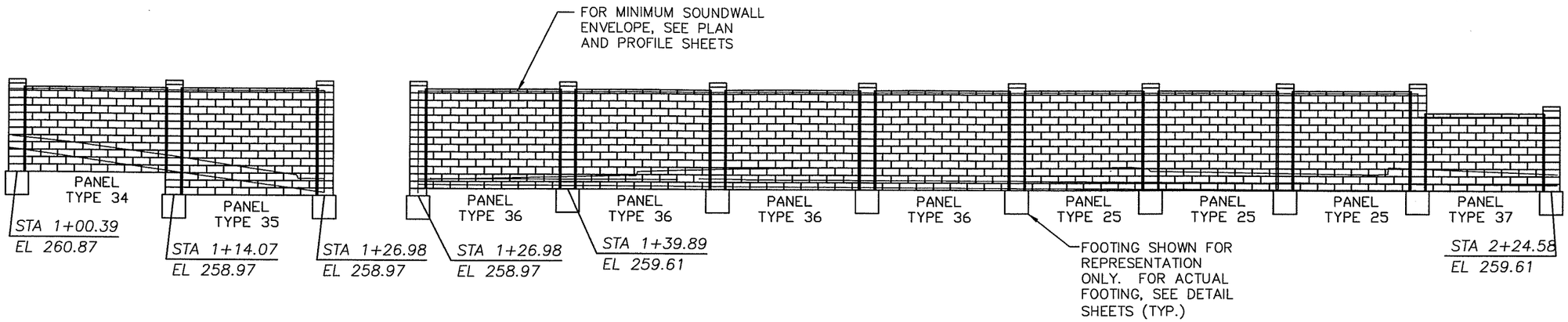
SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #5

GENE S. NELSON STATE OF WASHINGTON 19453 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/—

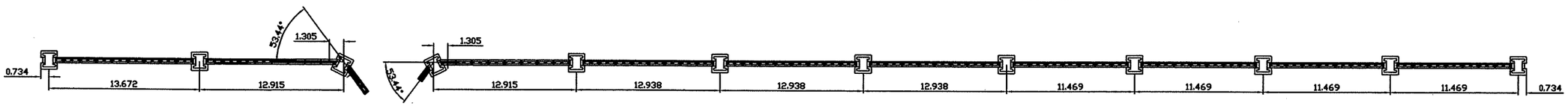
CH2MHILL

CLARK COUNTY WASHINGTON

NDM:180257: ABWall 5.dwg AUG-31-2005 08:42:26

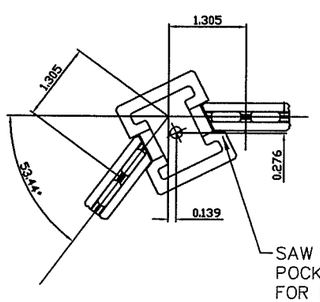


SOUNDWALL #6 ELEVATION VIEW



SOUNDWALL #6 PLAN VIEW

SOUNDWALL #6 KEYPLAN



A

CORNER POST DETAIL

NO SCALE

ALLAN BLOCK FENCE PANEL TYPE TABLE

PANEL TYPE	PANEL LENGTH, BLOCK	PANEL HEIGHT, BLOCK	POST REINFORCEMENT	BOND BEAM REINFORCEMENT	BOND BEAM REINFORCEMENT LOCATION, COURSE #
TYPE 25	7 PANEL BLOCK	13 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 12
TYPE 34	8.5 PANEL BLOCK	11 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 6, 10
TYPE 35	8 PANEL BLOCK	14 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13
TYPE 36	8 PANEL BLOCK	13 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 12
TYPE 37	7 PANEL BLOCK	10 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 5, 9

DESIGNED Engineer
DRAWN Drawn
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG: B22
SHEET 22 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #6

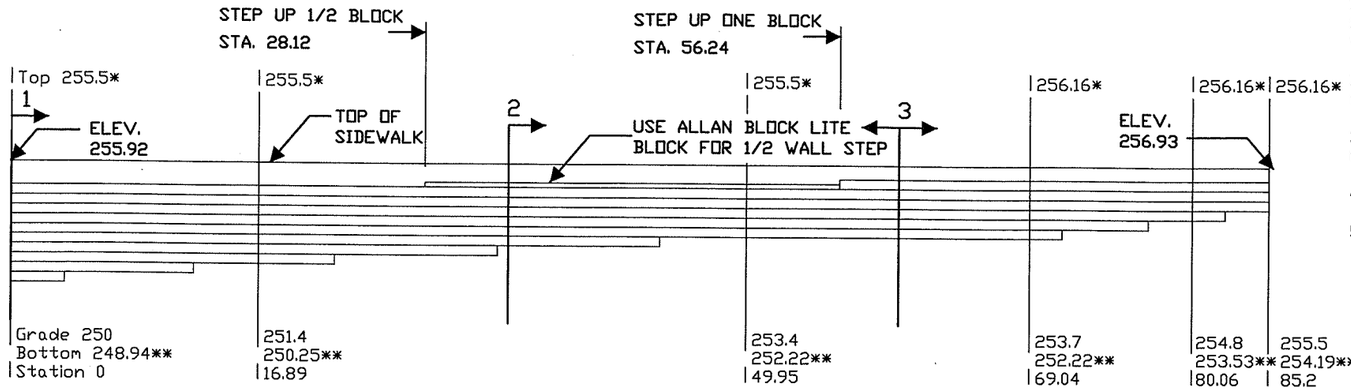
STATE OF WASHINGTON GERALD ST. NELSON 37996 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CH2MHILL

CLARK COUNTY WASHINGTON

AUG-31-2005 08:42:26

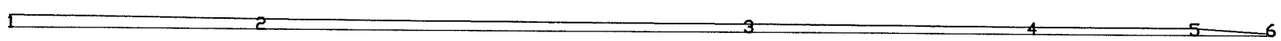
NDM:180257: ABWall 6.dwg



Section	1	2	3
Top	255.5	255.5	256.16
Grade	250	252.42	253.56
Bottom	248.94	251.56	252.22
Station	0	33.79	60.23

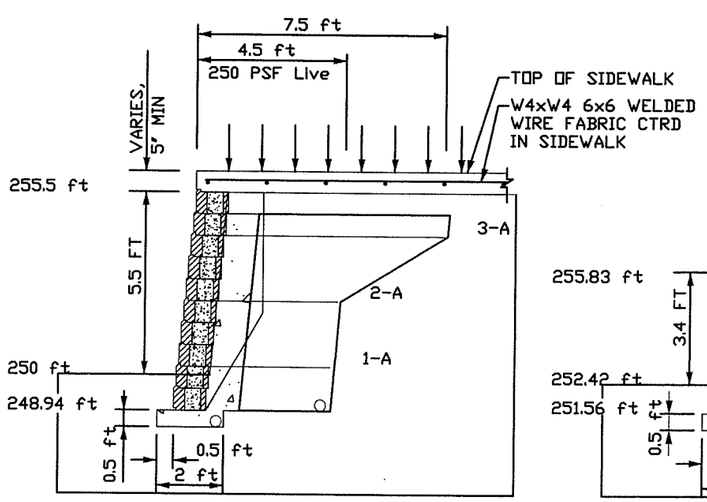
* ELEV. OF TOP OF TOP BLOCK.
** ELEV. OF BOTTOM OF BOTTOM BLOCK.

FRONT ELEVATION VIEW OF RETAINING WALL #7

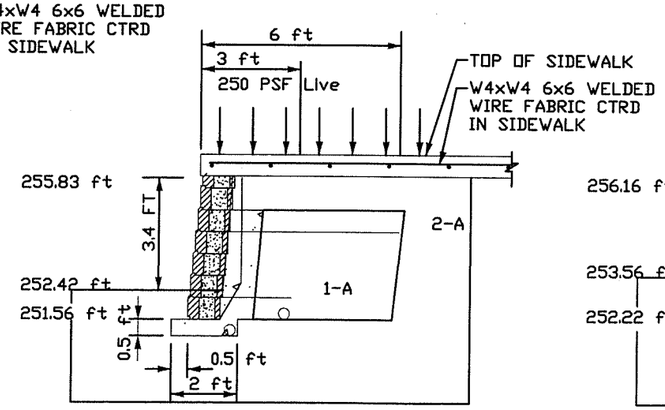


PLAN VIEW OF RETAINING WALL #7

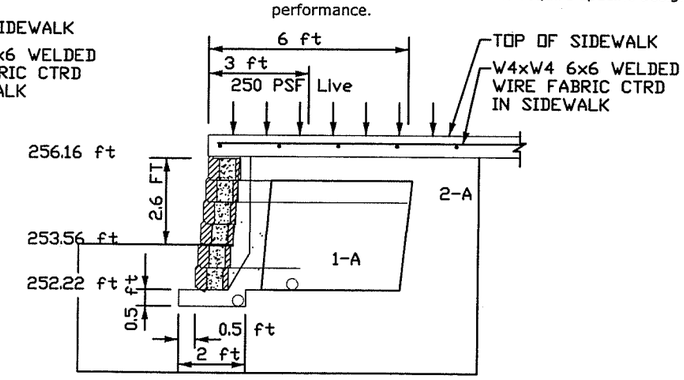
FOR IDENTIFICATION ONLY



Section 1
NO SCALE



Section 2
NO SCALE



Section 3
NO SCALE

General Notes:

1- Retaining wall units and installation shall conform to the Allan Block Modular Retaining Wall Systems Specification Guidelines, Geogrid Reinforcement Systems Specification Guidelines, and Water Management Specification Guidelines as published in the AB Spec Book, ABENG.M4-00.

2- Hydrostatic loading is not considered in this analysis. Sufficient drainage must be provided such that hydrostatic loading (pore pressure) does not develop in the reinforced zone.

3- Analysis assumes fill placement in 8 inch lifts compacted to 90% standard proctor. Compaction test frequency shall be determined by the engineer or as otherwise specified.

4- Seismic Coeficient of 0.36 was used for design.

5- Wall design utilizes the following strength parameters:

Infill Soil: Internal angle of friction = 30 degree
Soil unit Weight = 120 pcf
Retained Soil: Internal angle of friction = 30 degree
Soil unit Weight = 120 pcf
Foundation Soil: Internal angle of friction = 30 degree
Soil unit Weight = 120 pcf
Cohesion = 0 psf
Actual site soils must meet or exceed these parameters.

6- The retaining wall plan view is for identification only.

7- Staion 0+00 of Retianing Wall #7 matches Station 1+84.98 of Soundwall #7

8- Staion 0+85.2 of Retianing Wall #7 matches Station 0+99.78 of Soundwall #7

Surface Drainage Notes:

9- Rainfall and other water sources such as irrigation activities can be defined as surface water. The retaining wall design shall take into consideration the management of this water.

10- Site grading shall be designed to route surface water around and away from the wall.

11- The internal drainage system of the retaining wall is designed to remove incidental water that infiltrates into the soil behind the wall. Adequate storm water drainage systems are required to completely drain the area around the retaining wall structure.

12- Drain piping should be located at the back of the rock drain field behind the wall as close to the bottom of the wall as allowed while still maintaining a positive gradient for drainage to daylight, or to a storm water management system.

13- A heel drain may be required at back of the cut to route water away from the reinforced soil mass during the construction process.

14- Ground water can be present within the soil due to surface infiltration or water table fluctuation. If ground water is encountered during construction, an adequate drainage system must be installed or the wall design must consider the presence of water within the soil mass.

15- All water collection devices such as roof downspouts, storm sewers, and curb gutters must be designed to accommodate maximum flow rates and outlet outside the retaining wall area.

16- Retaining walls in conditions that allow standing water to overlap the wall face are considered water applications. These walls require specific design and construction steps to ensure performance.

DESIGNED AB/CEN
DRAWN AB/DLM
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 11-14-03
DWG: B25
SHEET 25 OF 26

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

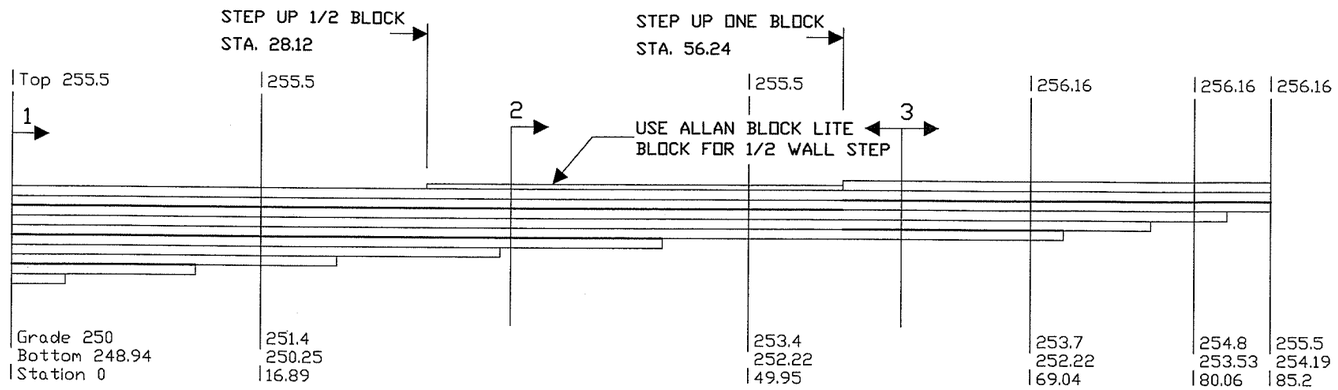
RETAINING WALL PLAN AND ELEVATION
SOUNDWALL #7

CHRISTOPHER J. NELSON STATE OF WASHINGTON 40371 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

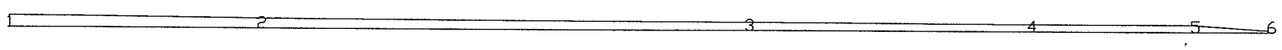
CLARK COUNTY WASHINGTON

NDM:180257: AB Retaining Wall 7.dwg AUG-31-2005 08:42:26



Section	1	2	3
Top	255.5	255.5	256.16
Grade	250	252.42	253.56
Bottom	248.94	251.56	252.22
Station	0	33.79	60.23

FRONT ELEVATION VIEW OF RETAINING WALL #7



PLAN VIEW OF RETAINING WALL #7

FOR IDENTIFICATION ONLY

General Notes:

1- Retaining wall units and installation shall conform to the Allan Block Modular Retaining Wall Systems Specification Guidelines, Geogrid Reinforcement Systems Specification Guidelines, and Water Management Specification Guidelines as published in the AB Spec Book, ABENG.M4-00.

2- Hydrostatic loading is not considered in this analysis. Sufficient drainage must be provided such that hydrostatic loading (pore pressure) does not develop in the reinforced zone.

3- Analysis assumes fill placement in 8 inch lifts compacted to 90% standard proctor. Compaction test frequency shall be determined by the engineer or as otherwise specified.

4- Seismic Coeficient of 0.36 was used for design.

5- Wall design utilizes the following strength parameters:

Infill Soil: Internal angle of friction = 30 degree
Soil unit Weight = 120 pcf
Retained Soil: Internal angle of friction = 30 degree
Soil unit Weight = 120 pcf
Foundation Soil: Internal angle of friction = 30 degree
Soil unit Weight = 120 pcf
Cohesion = 0 psf
Actual site soils must meet or exceed these parameters.

6- The retaining wall plan view is for identification only.

7- Staion 0+00 of Retianing Wall #7 matches Station 1+84.98 of Soundwall #7

8- Staion 0+85.2 of Retianing Wall #7 matches Station 0+99.78 of Soundwall #7

Surface Drainage Notes:

9- Rainfall and other water sources such as irrigation activities can be defined as surface water. The retaining wall design shall take into consideration the management of this water.

10- Site grading shall be designed to route surface water around and away from the wall.

11- The internal drainage system of the retaining wall is designed to remove incidental water that infiltrates into the soil behind the wall. Adequate storm water drainage systems are required to completely drain the area around the retaining wall structure.

12- Drain piping should be located at the back of the rock drain field behind the wall as close to the bottom of the wall as allowed while still maintaining a positive gradient for drainage to daylight, or to a storm water management system.

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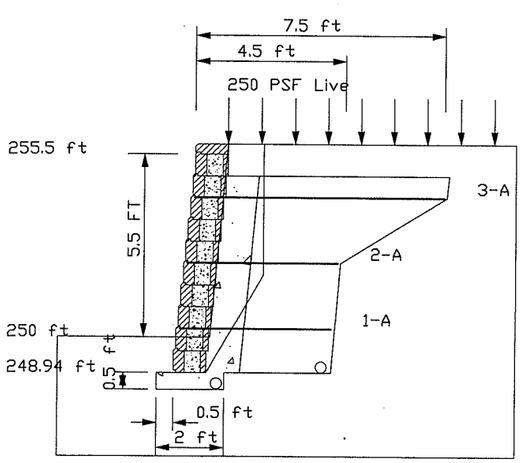
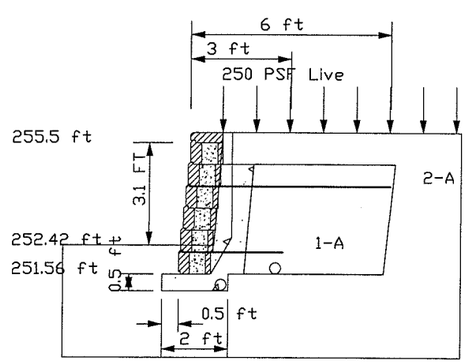


Section 1
NO SCALE



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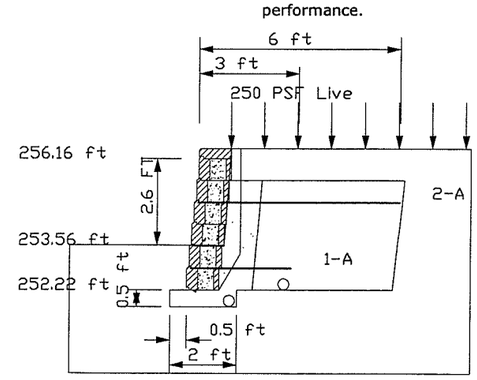

Section 3
NO SCALE

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DESIGN & ENGINEERING DIVISION

RETAINING WALL PLAN AND ELEVATION
SOUNDWALL #7

STATE OF WASHINGTON GARY ST. NELSON 13746 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

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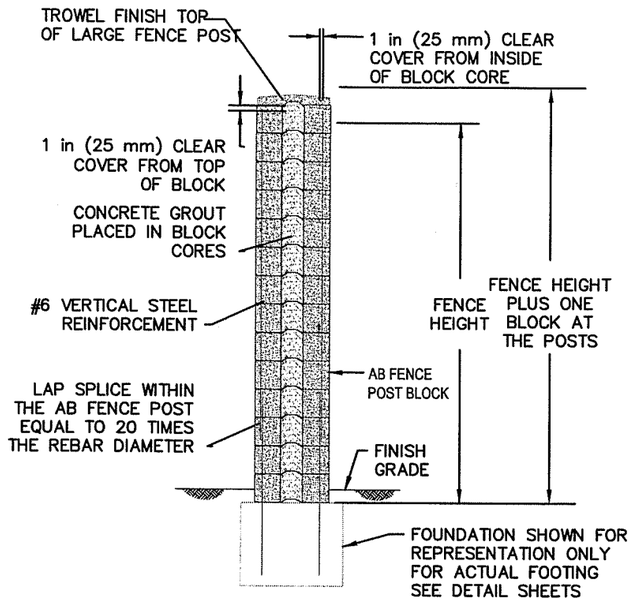
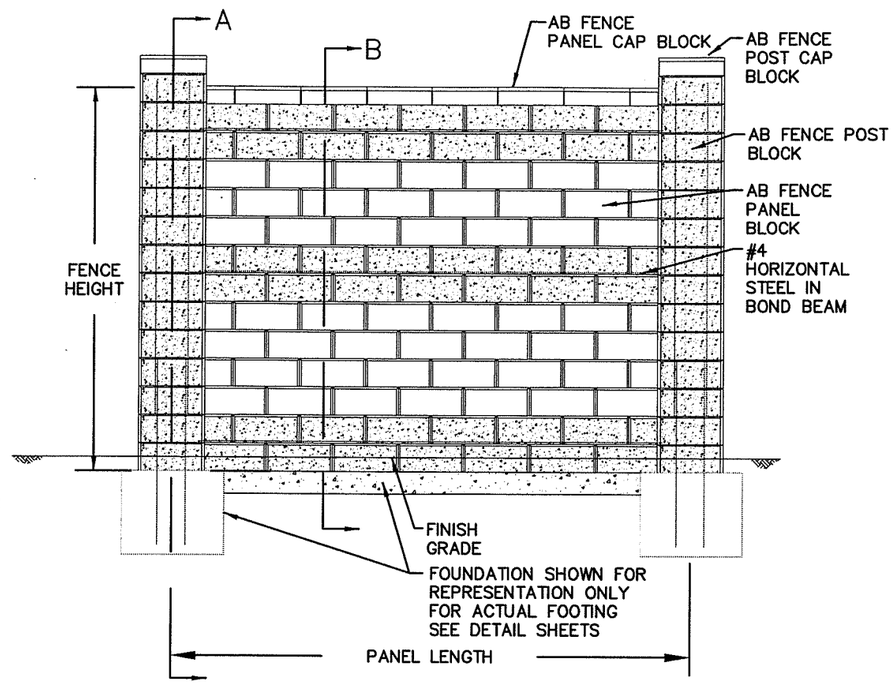
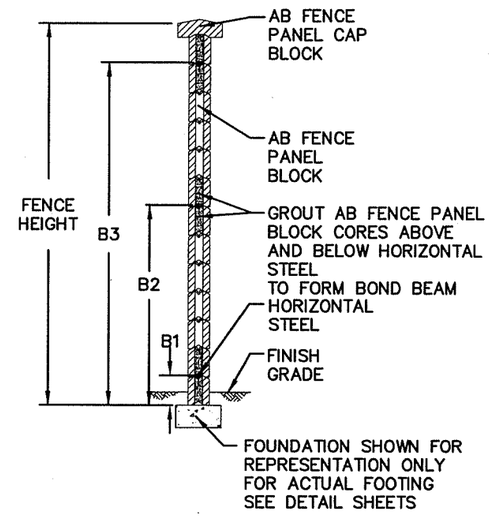


1.1 AB FENCE POST SECTION A

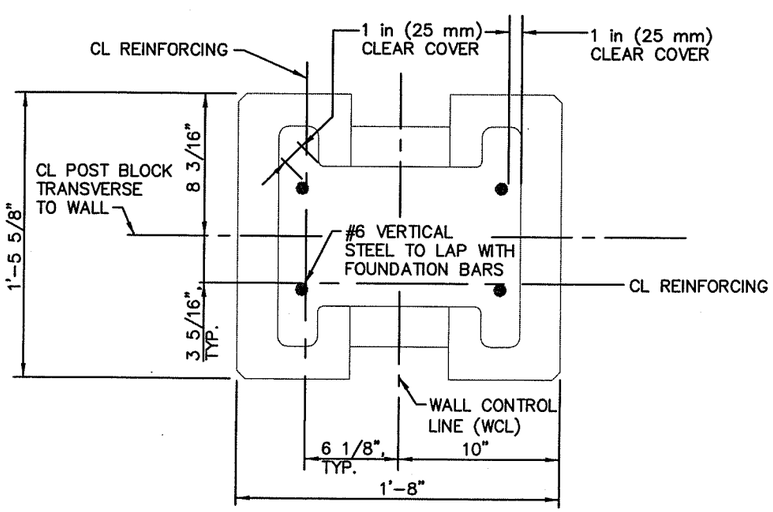


1.2 AB FENCE PANEL ELEVATION

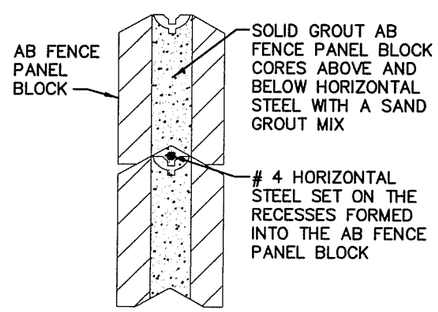


NOTE:
FOR ACTUAL BOND BEAM LOCATIONS SEE ALLAN BLOACK FENCE PANEL TYPE TABLE ON ELEVATION SHEETS

1.3 AB FENCE PANEL SECTION B



1.4 VERTICAL STEEL PLACEMENT



1.5 HORIZONTAL STEEL PLACEMENT

SOUND WALL GENERAL NOTES:

1. ALL CONSTRUCTION OF THE SOUND WALL SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDE."

2. CONSTRUCTION INSPECTION SHALL INCLUDE BUT NOT BE LIMITED TO PILE EXCAVATION, CONCRETE POURING, REINFORCEMENT PLACING, GROUT PLACING AND AB FENCE BLOCK INSTALLATION.

3. SOUND WALL IS BASED ON THE FOLLOWING DESIGN CRITERIA FROM THE 1997 UNIFORM BUILDING CODE (UBC):
   - a. WIND STAGNATION PRESSURE (qs) FOR FENCES UNDER 12 FEET, TABLE 16–F
     WIND SPEED OF 80 mph, qs = 12.3 psf
   - b. COMBINDED HEIGHT, EXPOSURE AND GUST FACTOR COEFFICIENT (Ce), TABLE 16–G
     EXPOSURE B, Ce = 0.62
   - c. PRESSURE COEFFICIENTS (Cq), TABLE 16–H
     STRUCTURE #7, Cq = 1.4
   - d. OCCUPANCY CATEGORY WIND IMPORTANCE FACTOR (Iw), TABLE 16–K
     OCCUPANCY CATEGORY #4, Iw = 1.0
   - e. SEISMIC ZONE FACTOR (Z) TABLE 16–I, Z = 0.3
   - f SEISMIC COEFFICENT (Ca) TABLE 16–Q, Ca = 0.36

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DESIGN & ENGINEERING DIVISION

SOUNDWALL DETAIL AND GENERAL NOTES

STATE OF WASHINGTON ERIC NELSON 33341 REGISTERED PROFESSIONAL ENGINEER EXPIRES 10/29/__

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CLARK COUNTY WASHINGTON

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