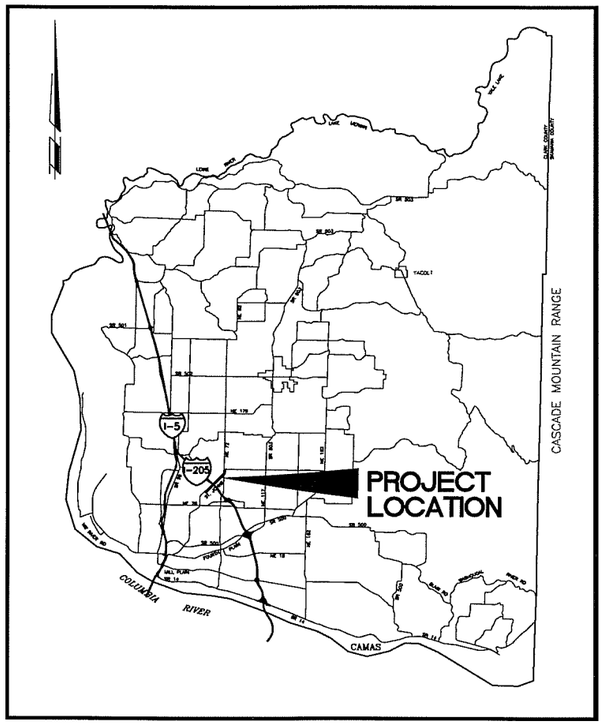
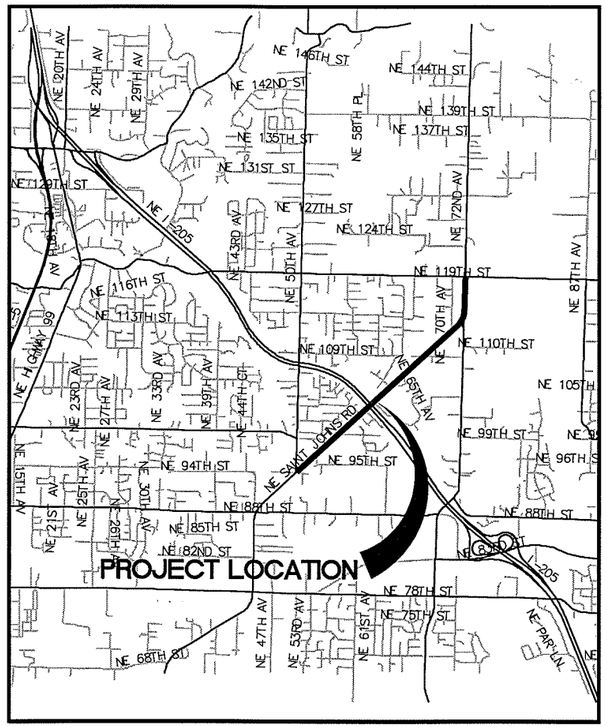
CAPITAL IMPROVEMENTS PROGRAM
COUNTY ROAD PROJECT #301422

ST. JOHNS ROAD

NE 50TH AVENUE TO NE 72ND AVENUE

PLANS FOR THE CONSTRUCTION OF
ROADWAYS AND STORM DRAINAGE





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COMMISSIONERS:

BETTY SUE MORRIS, Chair
JUDIE STANTON, Commissioner
CRAIG A. PRIDEMORE, Commissioner

CLARK COUNTY WASHINGTON
proud past, promising future

DEPARTMENT OF
PUBLIC WORKS

DESIGN AND ENGINEERING DIVISION- DESIGN SECTION

Fed. Aid No.
STPUL 4347(004)

MICHAEL M. EMRICH — STATE OF WASHINGTON — 29030 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES:MAY 26, 2005

JOHN MILNE — STATE OF WASHINGTON — 31148 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES:JULY 7, 2005

Quality Assurance	Project Manager	Public Works Director/ County Engineer
DATE:	DATE:	DATE:
Larry Maddux, P.L.S.	Carolyn Heniges	Peter Capell, P.E.

PRELIMINARY 99% PLANS

CLARK COUNTY WASHINGTON
proud past, promising future

Recommended for Approval

Grading _____ Erosion _____

Storm Water Plan _____

Development Review Manager _____ Date _____

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SUMMARY OF QUANTITIES

QUANT	UNIT	BID ITEM DESCRIPTION
1	L.S.	MOBILIZATION
1	EST.	MINOR CHANGE
8400	HOUR	TRAFFIC CONTROL LABOR
450	HOUR	TRAFFIC CONTROL SUPERVISOR
1	L.S.	TEMPORARY TRAFFIC CONTROL DEVICES
200	S.F.	CONSTRUCTION SIGNS CLASS "A"
100	L.F.	TYPE III BARRICADE
1	L.S.	CLEARING AND GRUBBING
1	EST.	ROADSIDE CLEANUP-FORCE ACCOUNT
1	L.S.	REMOVAL OF STRUCTURES AND OBSTRUCTIONS
30640	C.Y.	ROADWAY EXCAVATION (INCL HAUL)
22150	C.Y.	EMBANKMENT COMPACTION
8000	C.Y.	UNSUITABLE FOUNDATION EXCAVATION (INCL. HAUL)
24628	TON	GRAVEL BORROW (INCL. HAUL)
1300	L.F.	SAWCUT EXISTING (ASPHALT) PAVEMENT
750	MGAL	WATER
20000	L.F.	CONSTRUCTION GEOTEXTILE FOR TEMPORARY SILT FENCE
46744	TON	CRUSHED SURFACING BASE COURSE
6400	TON	BALLAST (INCL. HAUL)
12935	TON	ASPHALT CONCRETE PAVEMENT CL. A
16629	TON	ASPHALT CONCRETE PAVEMENT CL. E
163	S.Y.	PLANING BITUMINOUS PAVEMENT
629	S.Y.	ASPHALT CONCRETE APPROACH CL A
1272	S.Y.	CEMENT CONCRETE APPROACH, 3-DAY
1000	S.F.	GEOGRID SOIL REINFORCEMENT FABRIC
4650	S.F.	MODULAR/SEGMENTAL BLOCK RETAINING WALL (INCL. CAP UNIT)
23760	S.F.	SOUND WALL
511	S.F.	CIP RETAINING/SOUND WALL
1058	S.F.	SOLDIER PILE RETAINING/SOUND WALL
1336	S.F.	WIRE MESH RETAINING/SOUND WALL
400	S.F.	BLOCK RETAINING/SOUND WALL
825	S.Y.	GEOGRID SOIL REINFORCEMENT FABRIC (FOR WALL)
13236	L.F.	TRENCH SAFETY SYSTEM
418	L.F.	DUCTILE IRON PIPE 10 IN. DIAM.
165	L.F.	DUCTILE IRON PIPE 12 IN. DIAM.
140	L.F.	ST. STR. PLATE PIPE ARCH, 12 GAGE, 6 FT. 1 IN. X 4 FT. 7 IN. SPAN
1	L.S.	DEWATERING, WMA 1
1	L.S.	DEWATERING, WMA2
1	L.S.	DEWATERING, WMA3
1	L.S.	DEWATERING, 110TH ST. STORM SEWER
1673	L.F.	STORM SEWER PIPE, 10 IN. DIAM.
2507	L.F.	STORM SEWER PIPE, 12 IN. DIAM.
1921	L.F.	STORM SEWER PIPE, 18 IN. DIAM.
905	L.F.	STORM SEWER PIPE, 24 IN. DIAM.
2210	L.F.	STORM SEWER PIPE, 30 IN. DIAM.
1897	L.F.	STORM SEWER PIPE, 36 IN. DIAM.
2625	L.F.	STORM SEWER PIPE, 42 IN. DIAM.
101	L.F.	CLASS V REINF. CONC. STORM SEWER PIPE, 42 IN. DIAM. (JACKED)
104	L.F.	BOX CULVERT 6FT X 6FT (DESIGN/BUILD)
10	EACH	MANHOLE 48 IN. DIAM. TYPE 1
16	EACH	MANHOLE 48 IN. DIAM. TYPE 3
6	EACH	MANHOLE 60 IN. DIAM. TYPE 3
24	EACH	MANHOLE 72 IN. DIAM. TYPE 1
14	EACH	MANHOLE 72 IN. DIAM. TYPE 3
1	EACH	MANHOLE 84 IN. DIAM. TYPE 2
22	EACH	CATCH BASIN
50	EACH	CONCRETE COMBINATION CURB INLET TYPE 1
15	EACH	CONCRETE COMBINATION CURB INLET TYPE 2
1	EACH	SIDEWALK CHASE
2	EACH	SPECIAL CURB INLET
1	EACH	CATCH BASIN TYPE 2
1	EACH	MODIFIED CATCH BASIN TYPE 2 (84 IN. DIAM. FLOW SPLITTER)
1	EACH	CONCRETE DITCH INLET
40	EACH	ADJUST MANHOLE/CATCH BASIN/INLET/DRYWELL METHOD 1
38	EACH	ADJUST WATER/GAS VALVE RIM, COVER & FRAME
109000	C.Y.	STORMWATER FACILITY EXCAVATION (INCL. HAUL)
46	ACRE	WETLAND PLANTING
19	C.Y.	REINFORCED CONCRETE FOR HEADWALL/WINGWALL STRUCTURE
18	C.Y.	STREAMBED ROCK
116	C.Y.	STREAMBED GRAVEL
20	L.F.	ROCK WEIRS
288	C.Y.	LIGHT, LOOSE RIPRAP
46780	S.F.	OPEN CELL SYSTEM AND POROUS PAVERS
4	ACRE	EROSION CONTROL SEEDING AND MULCHING
128	S.Y.	EROSION CONTROL BLANKET (PERMANENT)
2	EACH	STABILIZED CONSTRUCTION ENTRANCE
2	EACH	TIRE WASH
92	EACH	STORM DRAIN INLET PROTECTION
150	HOUR	EROSION PREVENTION AND SEDIMENT CONTROL LEAD
1	L.S.	SPILL PREVENTION PLAN
3520	C.Y.	COMPOST AMENDED TOPSOIL
880	C.Y.	BARK OR WOOD CHIP MULCH
1	L.S.	LANDSCAPE RESTORATION
75	EACH	PSIPE 1-1/2 IN. CALIPER TREES (Acer platanoides "Crimson Sentry")
90	EACH	PSIPE 1-1/2 IN. CALIPER TREES (Prunus subhirtella "Autumn Flowering Cherry")
1124	EACH	PSIPE - SHRUB, DECIDUOUS, 1 GAL. (Spiraea japonica "Goldflame")
326	EACH	PSIPE - SHRUB, EVERGREEN, 1 GAL. (Pieris japonica "Forest Flame")
312	EACH	PSIPE - SHRUB, EVERGREEN, 2 GAL. (Vibumum davidii "David virbumum")
1100	EACH	PSIPE GROUNDCOVER 4 IN. POT (Arctostaphylos uva-ursi "Kinnikinnick")
10019	L.F.	CEMENT CONC. BARRIER CURB
18984	L.F.	CEMENT CONC. BARRIER CURB AND GUTTER
45	L.F.	EXTRUDED CURB, TYPE 6 (CEMENT CONCRETE)
1945	L.F.	TYPE C PRECAST TRAFFIC CURB
3412	L.F.	FENCE RELOCATION
6860	L.F.	COATED CHAIN LINK FENCE - TYPE 1
5	EACH	DOUBLE 14 FT. COATED CHAIN LINK GATE
12610	S.Y.	CEMENT CONCRETE SIDEWALK
17	EACH	MAILBOX SUPPORT, TYPE 1
1	EACH	MAILBOX SUPPORT, TYPE 2
1	EACH	TRAFFIC SIGNAL SYSTEM (ST. JOHNS RD/NE 72ND AVE)

LEGEND

- ROW LINE
- NEW EDGE OF PAVEMENT
- NEW CURB LINE
- NEW CENTER LINE
- NEW FENCE LINE
- NEW STORM DRAIN OR CULVERT
- NEW FILL LIMITS
- NEW CUT LIMITS
- SAWCUT LINE
- PERMANENT SLOPE EASEMENT
- NEW SILT FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB LINE
- EXISTING CENTER LINE
- EXISTING FENCE LINE
- EXISTING TELEPHONE LINE
- EXISTING WATER LINE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING SANITARY SEWER LINE
- EXISTING STORM DRAINAGE
- EXISTING GAS LINE
- EXISTING CULVERT
- EXISTING DITCH CENTER LINE
- EXISTING GUARDRAIL

SYMBOLS

- NEW CATCH BASIN (CB)
- NEW MANHOLE (MH)
- NEW CURB INLET (CI)
- NEW COMBINATION CURB INLET (CCI)
- NEW MAIL BOX
- NEW HANDICAP RAMP
- CURVE TABLE
- EXISTING TRANSFORMER
- EXISTING ELEC TOWER
- EXISTING SANITARY SEWER MH
- EXISTING FIRE HYDRANT
- EXISTING CLEAN OUT
- EXISTING GAS VALVE
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING SIGNAL POLE
- EXISTING TELEPHONE VAULT
- EXISTING TELEVISION BOX
- EXISTING WELL
- EXISTING BRUSH LINE
- EXISTING HEDGE
- EXISTING CURB INLET (CI)
- EXISTING CATCH BASIN (CB)
- EXISTING STORM MH
- EXISTING MISC MH
- EXISTING SHRUB
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING SIGN
- EXISTING DECIDUOUS TREE
- EXISTING J BOX
- EXISTING TELEPHONE MANHOLE
- EXISTING TELEPHONE POLE
- EXISTING LIGHT
- EXISTING GUY ANCHOR
- EXISTING POWER POLE
- EXISTING MAIL BOX
- EXISTING TELEPHONE PEDESTAL
- EXISTING SPRINKLER HEAD
- TRAVERSE POINT
- TEST HOLE

DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG:	SQ1
SHEET	OF

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

MICHAEL M. EMRICK STATE OF WASHINGTON 20080 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
SUMMARY OF QUANTITIES AND LEGEND

proud past, promising future
CLARK COUNTY WASHINGTON

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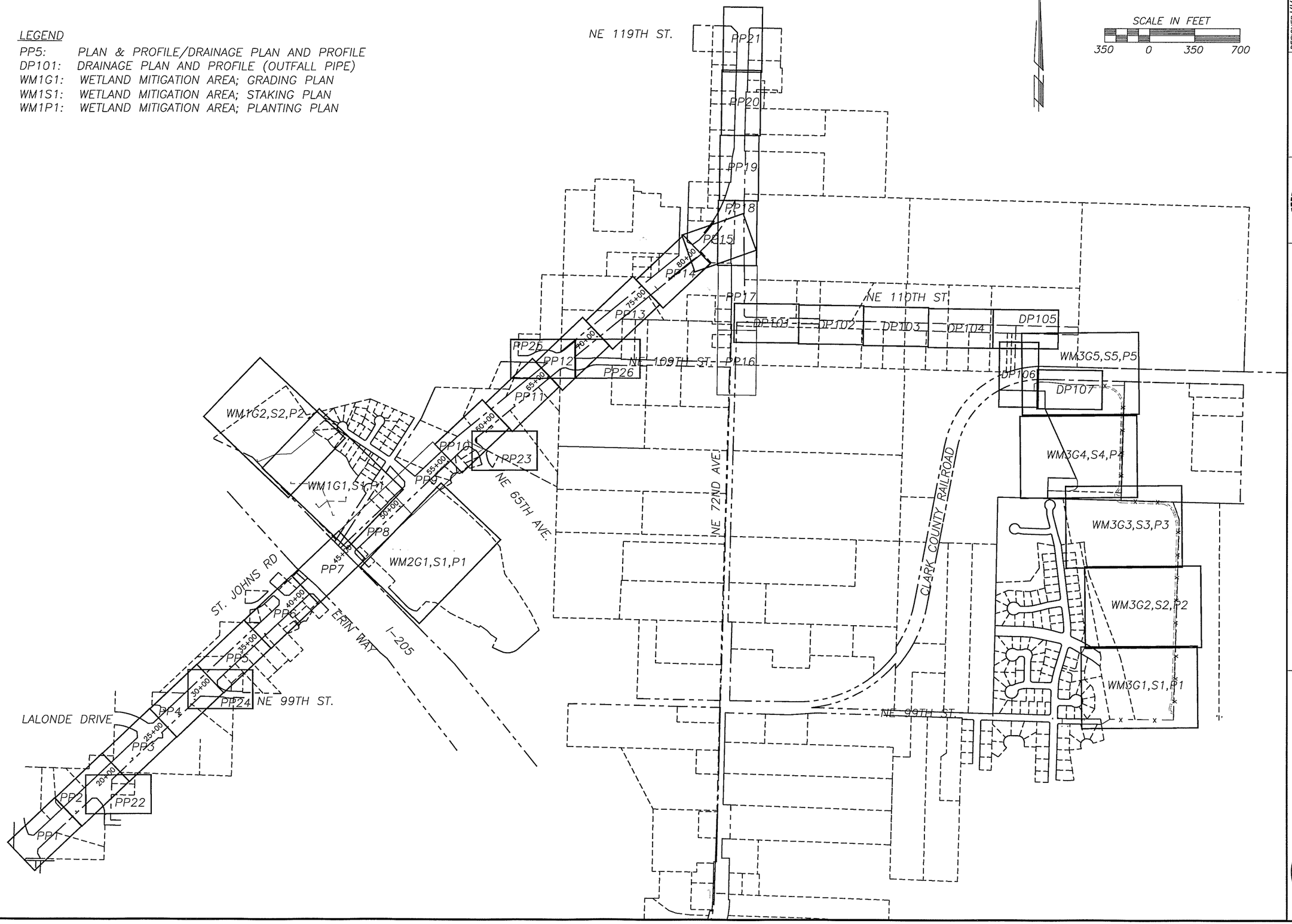
LEGEND

PP5: PLAN & PROFILE/DRAINAGE PLAN AND PROFILE
DP101: DRAINAGE PLAN AND PROFILE (OUTFALL PIPE)
WM1G1: WETLAND MITIGATION AREA; GRADING PLAN
WM1S1: WETLAND MITIGATION AREA; STAKING PLAN
WM1P1: WETLAND MITIGATION AREA; PLANTING PLAN



DESIGNED MME/JM
DRAWN KMB
CRP 301422
HOR. 1"=350'
VERT. NA
DATE 11/29/04
DWG. LAY1
SHEET OF

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

MICHAEL W. MEMBREY STATE OF WASHINGTON 28030 REGISTERED PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
SHEET LAYOUT

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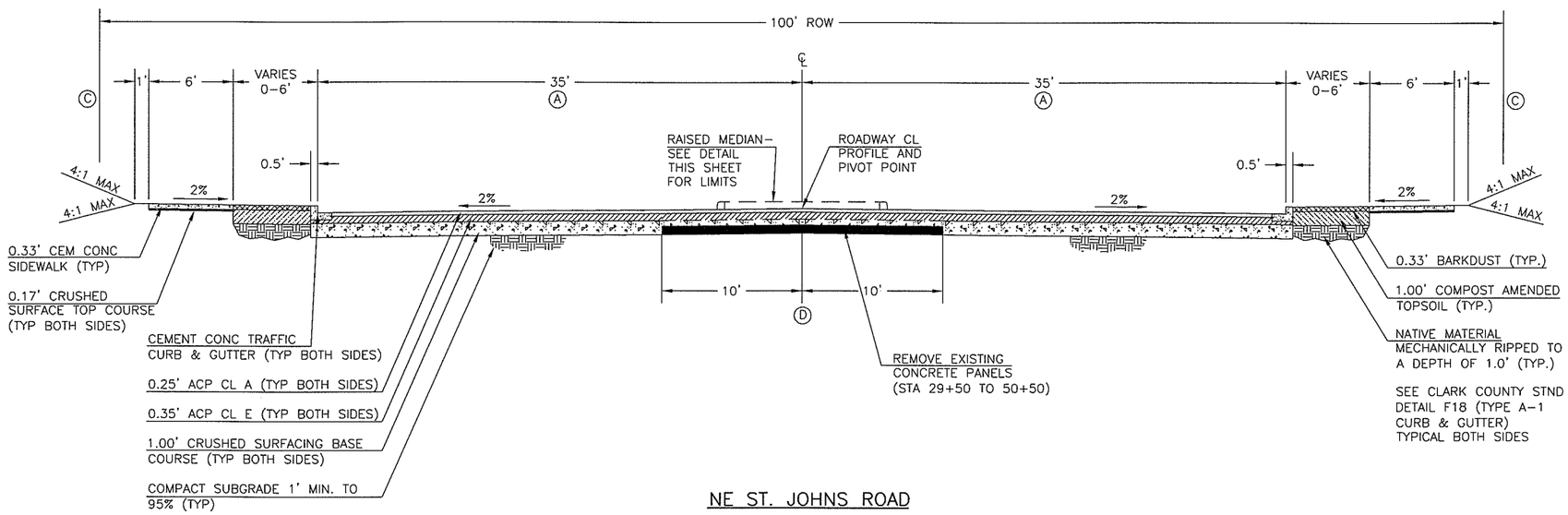
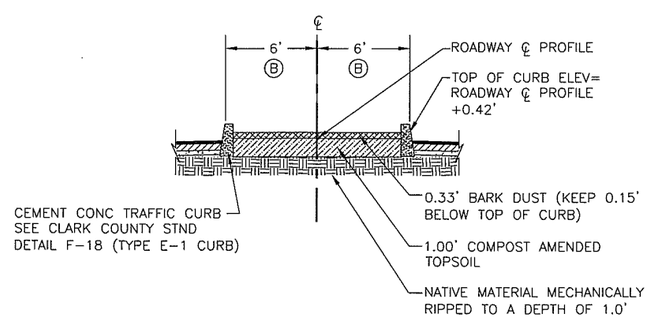


NE ST. JOHNS ROAD

STA 12+03.16 TO 84+36.82



RAISED MEDIAN SECTION

NE ST. JOHNS ROAD

STA 14+60.49 TO 15+84.51
STA 21+07.83 TO 21+50.51
STA 27+68.25 TO 30+20.00
STA 33+60.49 TO 36+09.51
STA 44+38.49 TO 44+87.50
STA 48+37.00 TO 49+79.51
STA 60+24.92 TO 64+71.51
STA 70+31.49 TO 80+92.10

Ⓐ 35' TYPICAL WIDTH. SEE PLAN SHEETS FOR TAPER WIDTHS AND LENGTHS.

Ⓑ 5.5' TYPICAL WIDTH. SEE PLAN SHEETS FOR TAPER WIDTHS AND LENGTHS.

Ⓒ SEE PLAN SHEET AND WALL DETAIL SHEET FOR RETAINING WALL LOCATIONS.

Ⓓ APPROX STA 44+50 TO 55+50 (ST. JOHNS ROAD) OVEREXCAVATE 3' BELOW SUBGRADE. REPLACE WITH BALLAST AND GEOGRID.

DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	NA
VERT.	NA
DATE	3/29/04
DWG:	TS1
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MICHAEL M. BERRICK STATE OF WASHINGTON 29330 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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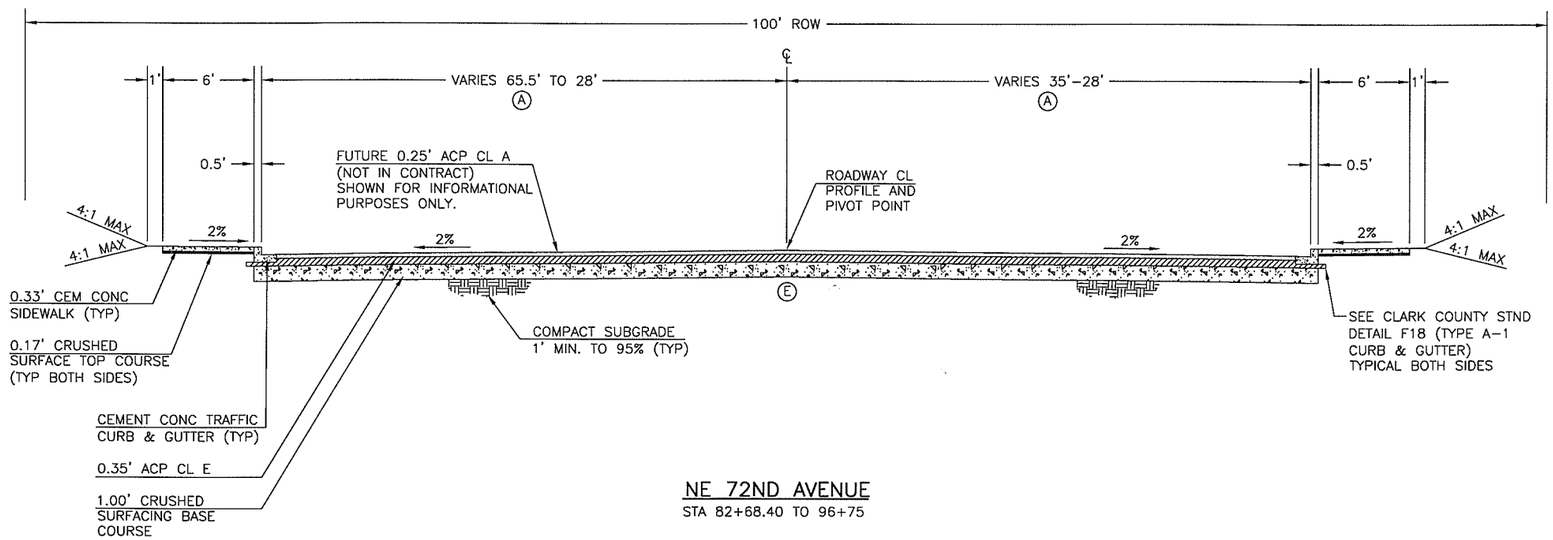
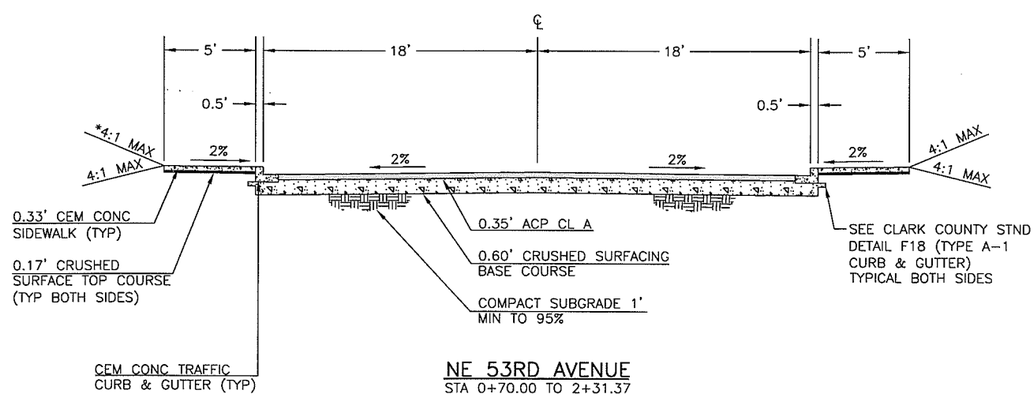


NE 72ND AVENUE
STA 82+68.40 TO 96+75

Ⓐ 35' TYPICAL WIDTH. SEE PLAN SHEETS FOR TAPER WIDTHS AND LENGTHS.

Ⓔ APPROX STA XX TO XX (NE 72ND AVE) OVEREXCAVATE MIN 1' BELOW SUBGRADE. REPLACE WITH BALLAST AND GEOGRID.



*2:1 CUT SLOPES
ON NE 65TH AVE

NE 53RD AVENUE
STA 0+70.00 TO 2+31.37

NE 65TH AVENUE
STA 0+70.00 TO 1+45

NE 70TH AVENUE
STA 0+60 TO 1+24.30

NE 99TH STREET
STA 0+70.00 TO 2+37.40

NE 109TH STREET
STA 10+15 TO 16+95

DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
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MICHAEL M. EMDICK
STATE OF WASHINGTON
20580
REGISTERED PROFESSIONAL ENGINEER
EXPIRES:MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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WASHINGTON

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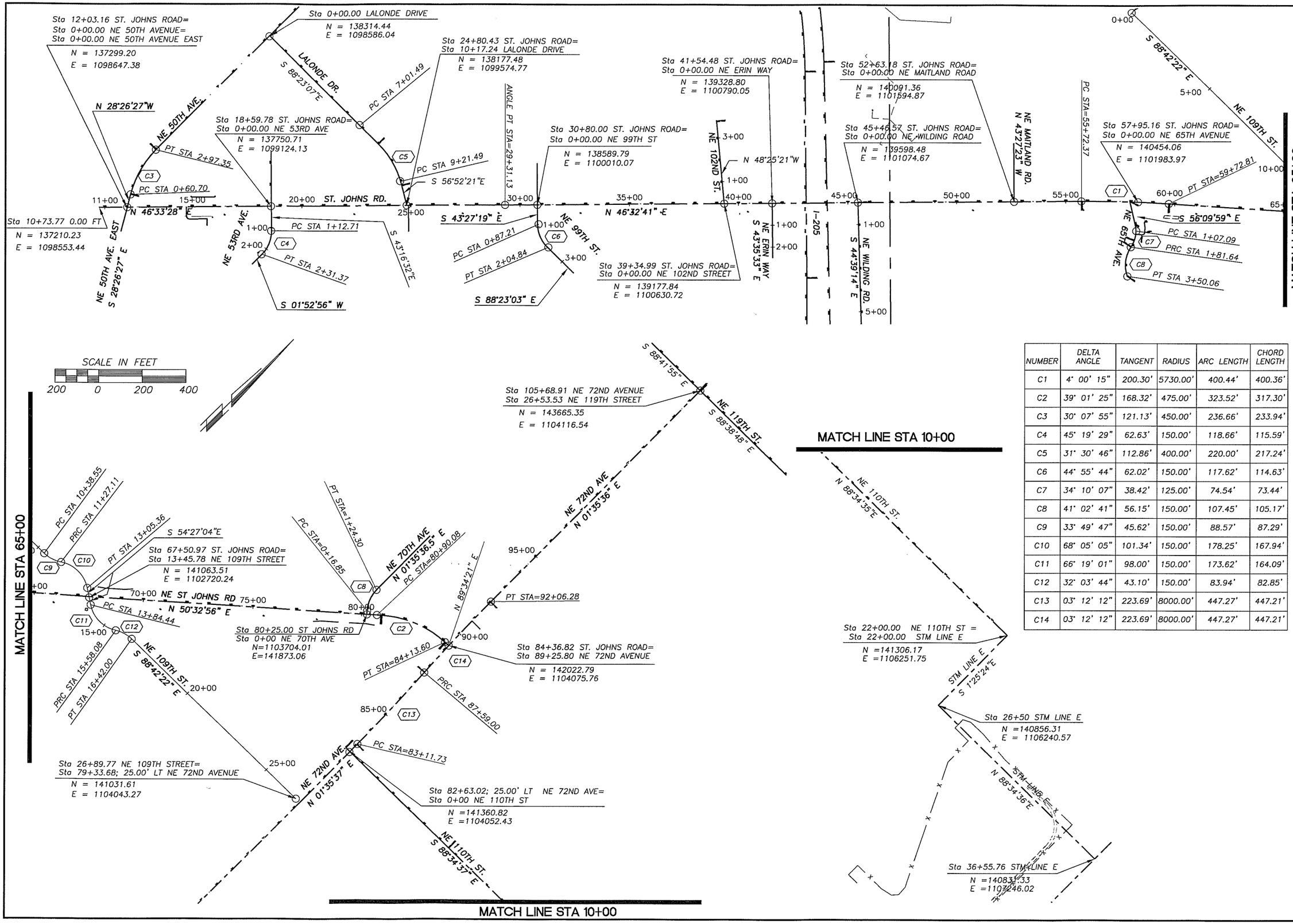

NUMBER	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH	CHORD LENGTH
C1	4° 00' 15"	200.30'	5730.00'	400.44'	400.36'
C2	39° 01' 25"	168.32'	475.00'	323.52'	317.30'
C3	30° 07' 55"	121.13'	450.00'	236.66'	233.94'
C4	45° 19' 29"	62.63'	150.00'	118.66'	115.59'
C5	31° 30' 46"	112.86'	400.00'	220.00'	217.24'
C6	44° 55' 44"	62.02'	150.00'	117.62'	114.63'
C7	34° 10' 07"	38.42'	125.00'	74.54'	73.44'
C8	41° 02' 41"	56.15'	150.00'	107.45'	105.17'
C9	33° 49' 47"	45.62'	150.00'	88.57'	87.29'
C10	68° 05' 05"	101.34'	150.00'	178.25'	167.94'
C11	66° 19' 01"	98.00'	150.00'	173.62'	164.09'
C12	32° 03' 44"	43.10'	150.00'	83.94'	82.85'
C13	03° 12' 12"	223.69'	8000.00'	447.27'	447.21'
C14	03° 12' 12"	223.69'	8000.00'	447.27'	447.21'

DESIGNED MME
DRAWN KMB
CRP 301422
HOR. 1"=200'
VERT. NA
DATE 11/29/04
DWG: HV01
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STATE OF WASHINGTON MICHAEL K. BARCLAY 29530 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
HORIZONTAL & VERTICAL CONTROL

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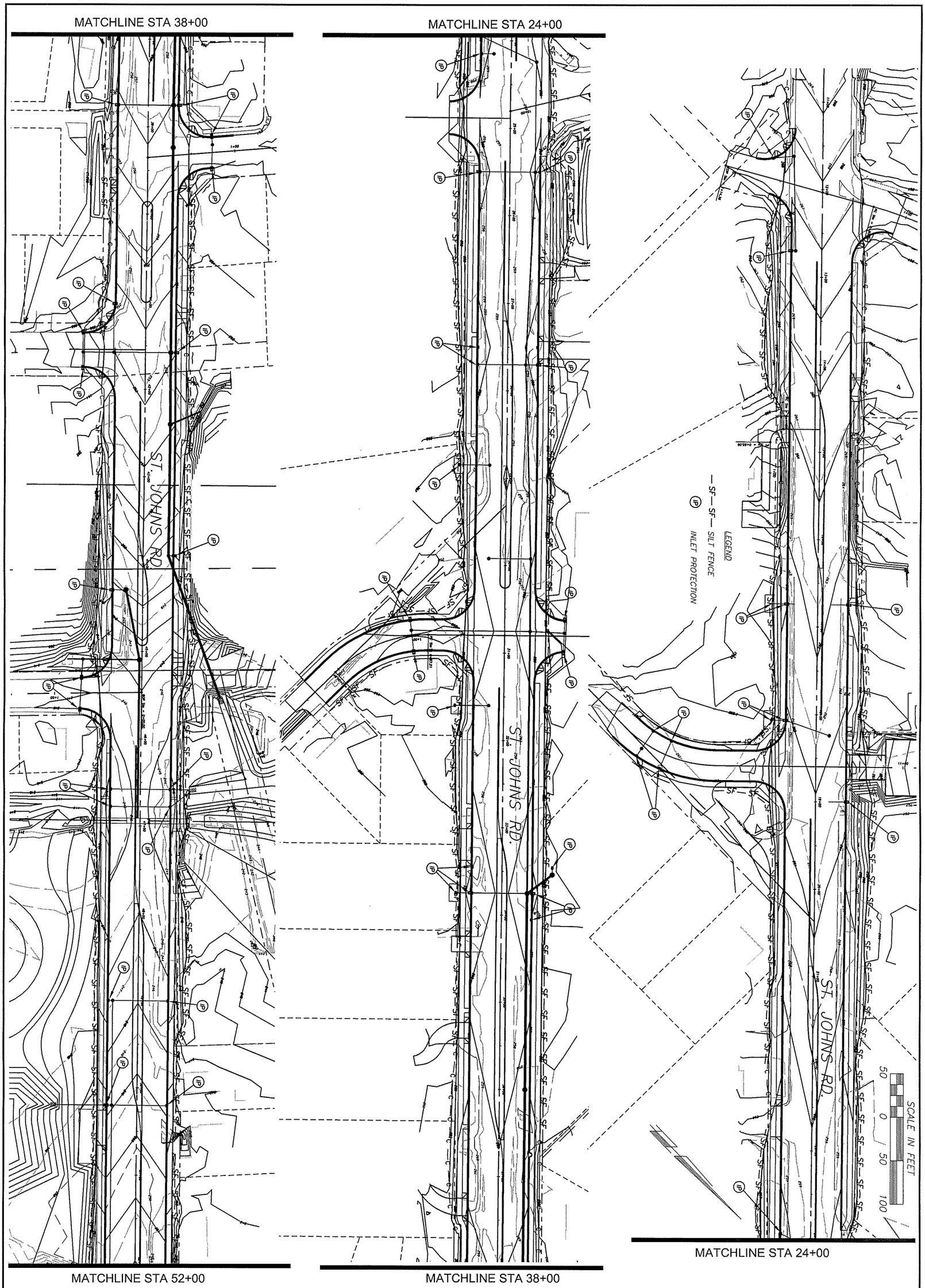

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DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
EROSION CONTROL PLAN

MICHAEL M. ENRICO
STATE OF WASHINGTON
29030
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

CALL 48 HOURS BEFORE YOU DIG
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DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	1"=50'
VERT.	NA
DATE	11/29/04
DWG:	EC01
SHEET	OF

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DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
EROSION CONTROL PLAN

MICHAEL M. EMMICK
STATE OF WASHINGTON
29030
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES:MAY 26, 2005

CALL 48 HOURS BEFORE YOU DIG
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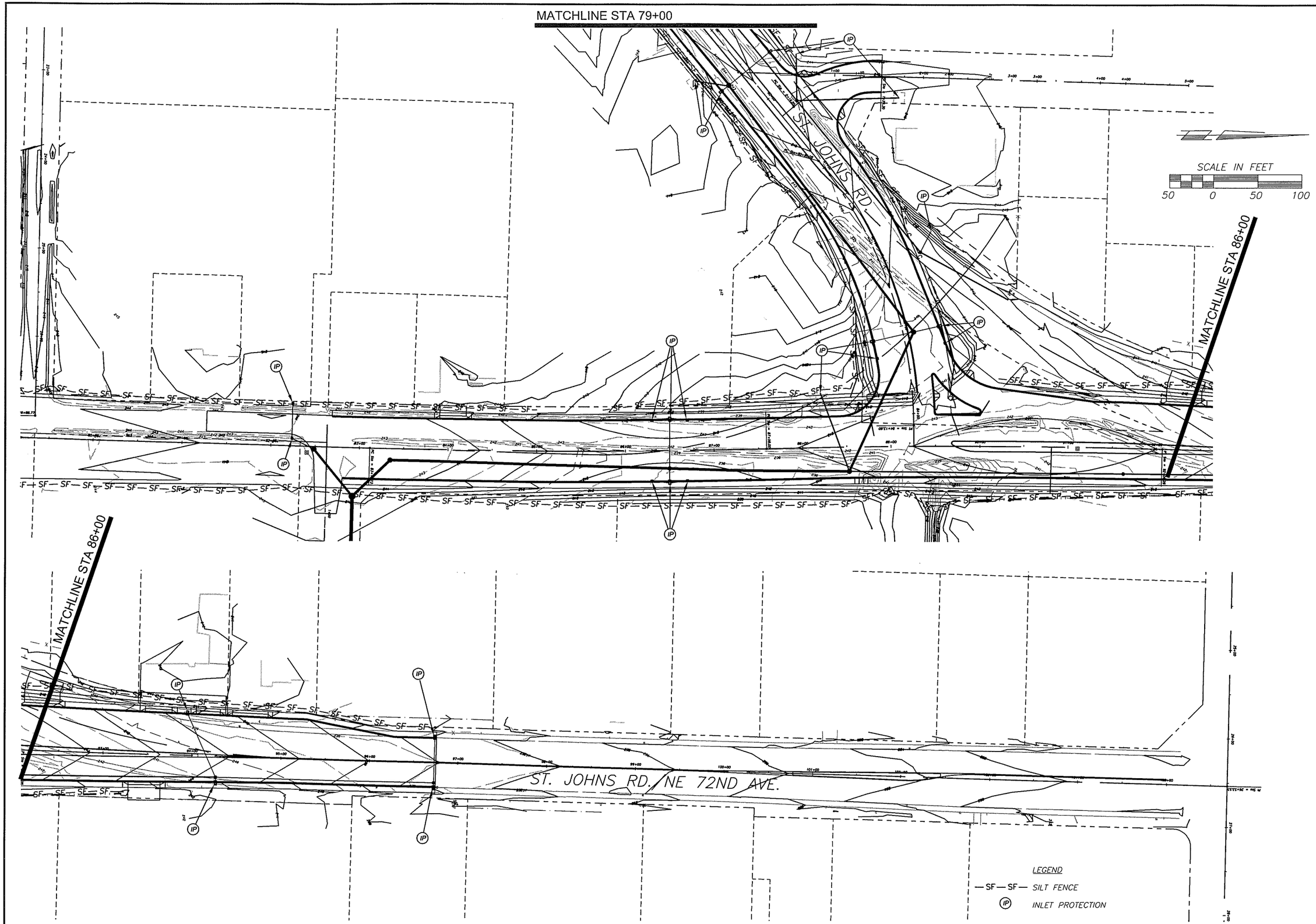
DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	1"=50'
VERT.	NA
DATE	11/29/04
DWG:	EC02
SHEET	OF



DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	1"=50'
VERT.	NA
DATE	11/29/04
DWG:	EC03
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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It's the Law
NORTHWEST UTILITIES NOTIFICATION CENTER

MICHAEL E. KIRCHER
STATE OF WASHINGTON
29130
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 25, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
EROSION CONTROL PLAN

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CLARK COUNTY
WASHINGTON

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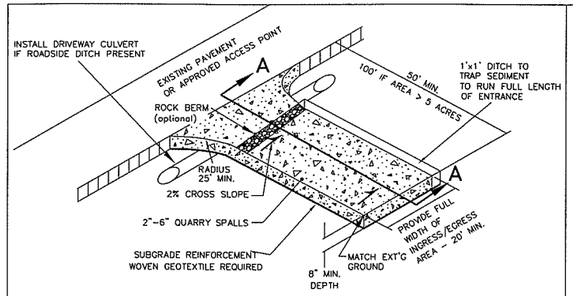

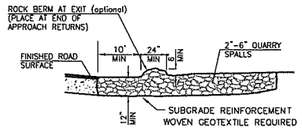

1. EXCAVATE MINIMUM OF 12" OF EXISTING SOILS.
2. PLACE MINIMUM OF 12" OF 2"-6" QUARRY SPALLS
3. CONSTRUCT ROCK BERM ALONG TRANSITION POINT TO FINISH ROAD SURFACES. DIVERT RUNOFF TO ONSITE AREA (OPTIONAL).

SECTION A-A

NOTES:

1. FOR DEVELOPMENT PROJECTS REVIEWED BY ENGINEERING SERVICES. NOT FOR USE WITH SINGLE FAMILY OR DUPLEX RESIDENTIAL BUILDING PERMITS. SEE BUILDING DEPT. FOR GRAVEL CONSTRUCTION ENTRANCE PLAN.
2. INSTALL WOVEN GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.
3. VEHICLE WASHDOWN AREA, IF REQUIRED, IS TO BE INSTALLED AND USED TO REMOVE SEDIMENT FROM VEHICLES THAT ARE ABOUT TO ENTER AN ESTABLISHED ROAD.
4. WASHDOWN AREA TO BE MADE UP OF CLEAN 2"- 6" QUARRY SPALLS, 1' DEEP (MIN) OVER WOVEN GEOTEXTILE FABRIC. WASHDOWN AREA TO BE FULL WIDTH OF ENTRANCE AND 50' (MIN.), AND 100' IF EXPOSED SOIL IS OVER 5 ACRES.
5. AT TIME OF PRECONSTRUCTION MEETING, THE COUNTY INSPECTOR MAY REQUIRE THE ENTRANCE TO BE PAVED TO THE EDGE OF THE RIGHT-OF-WAY PRIOR TO THE INSTALLATION OF A WASHDOWN ENTRANCE TO AVOID DAMAGE TO THE EXISTING ROADWAY.
6. THE RESPONSIBLE EROSION CONTROL INDIVIDUAL IS TO ENSURE THAT ALL VEHICLES USE THIS ENTRANCE AND ARE TO BE INSPECTED AND CLEANED OF SOILS BEFORE LEAVING PROJECT, AND THAT THE ENTRANCE IS TO BE KEPT CLEAN AT ALL TIMES.

NO.	REVISIONS	DATE	BY

DWG: E-1.DWG

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CLARK COUNTY WASHINGTON
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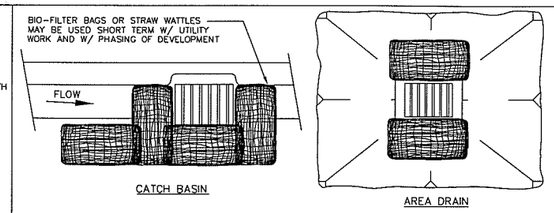
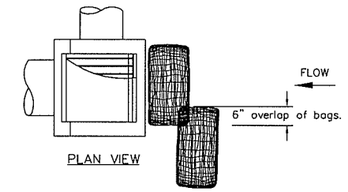
STANDARD CONSTRUCTION ENTRANCE

APPROVED
Peter Capen — COUNTY ENGINEER — 01/01/04 DATE

STANDARD E-1
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03





NOTES:

1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPE.
2. BIO-FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2" WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. STRAW WATTLES MUST BE STABILIZED BY ATTACHING WIRE CLIPS TO THE CATCH BASIN PER MANUFACTURES SPECIFICATIONS.
4. INLET PROTECTION MUST BE REGULARLY INSPECTED BY THE EROSION CONTROL INDIVIDUAL TO INSURE PROPER PLACEMENT/FUNCTION AND MAINTENANCE.
5. SEE INLET PROTECTION NOTES STD. PLAN E-3

NO.	REVISIONS	DATE	BY

DWG: E-3c.DWG

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CLARK COUNTY WASHINGTON
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INLET PROTECTION TYPE 4 BIOFILTER BAGS

APPROVED
Peter Capen — COUNTY ENGINEER — 01/01/04 DATE

STANDARD E-3c
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/07/03

STANDARD NOTES FOR EROSION CONTROL PLAN

1. The Contractor shall install and maintain BMP's as shown and perform all actions necessary to prevent erosion, and control sediment from leaving the construction site. Site Contractor shall comply with Clark County Code Chapter 40.380.050.

2. All erosion control measures shall be in-place and in working condition prior to disturbing and exposing any soil surfaces (i.e. silt fence, construction entrance, sedimentation barriers, sedimentation traps).

3. All erosion prevention and control BMP's shall be maintained and repaired as needed to insure continued performance of their intended function. Needed repairs shall be made as soon as practicable. They are to remain in place and operational during all phases of construction. Construction activities shall not continue or resume until repairs to erosion control facilities are made and the facilities are functional. Any sediment leaving the site or discharging to a sensitive area shall be stopped and controlled immediately. Contaminated areas shall be cleaned and restored.

4. Clearing limits and work area limits shall be delineated and marked. Do not disturb more area than needed for construction requirements.

5. All sensitive or critical areas (wetlands, steep slopes, natural waterways), and buffers shall all be clearly delineated and clearly marked, and protected from sediment deposition.
6. Sediment laden runoff shall be prevented from entering all existing storm water catch basins and inlets affected by construction.

7. No exposed, bare soils shall remain unstabilized for more than two days during the period October 1 thru April 30 or for more than seven days during the period of May 1 through September 30. All disturbed soil surfaces shall be stabilized by a suitable application of "Best Management Practices".

8. Where feasible, no more than 500 feet of trench shall be open at one time. Excavated material shall be placed on the up-hill side of trenches provided it does not conflict with safety requirements.

9. Dewatering devices shall discharge into a sediment trap or sediment pond. No discharge shall be made to a paved street or stormwater collection system without first removing sediment.

10. Cut and fill slopes shall be constructed in a manner that will minimize erosion. Erosion shall be controlled and prevented by such measures as roughening the surface, installation of interceptor ditches, terracing, covering with matting, mulch or plastic sheeting. Runoff shall be prevented from entering a slope and from undercutting the base of slopes.

11. Any soil or debris transported onto roadways and sidewalks shall be removed. Deposits shall be completely removed by shoveling and/or sweeping. Washing shall not be utilized unless specifically approved in writing by the County.

12. All permanent infiltration systems shall be isolated and protected from sediment laden runoff entering to avoid risk of reducing the ability of the systems to infiltrate. Isolation and protection shall not be removed until the drainage area tributary to the system is completely stabilized.

CONTINUED ON SHEET 2

NO.	REVISIONS	DATE	BY

DWG: ECN1.DWG

Department of Public Works
CLARK COUNTY WASHINGTON
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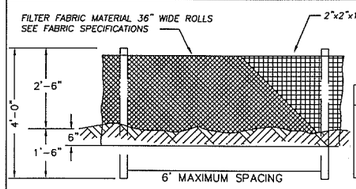
STANDARD NOTES FOR EROSION CONTOL PLAN

APPROVED
Peter Capen — COUNTY ENGINEER — 01/01/04 DATE

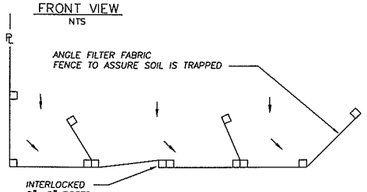
STANDARD ECN1
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/02/02



SEDIMENT FENCE FABRIC SPECIFICATIONS (Woven Polypropylene sediment fence fabric)

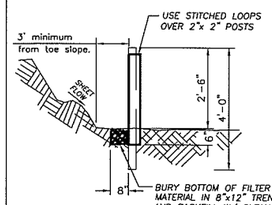
PROPERTY	TEST PROCEDURE	MIN. FABRIC VALUE
Grab Tensile Strength	ASTM D-4632	180 lbs.
Grab elongation	ASTM D-4632	15%
Trapezoid Tear	ASTM D-4533	70 lbs.
Mullen Burst	ASTM D-3786	300 psi.
Puncture	ASTM D-4833	80 lbs.
Permittivity	ASTM D-4491	0.07 sec-1
Permeability	ASTM D-4491	.005 cm/sec
A.O.S.	ASTM D-4751	50 U.S. Sieve
UV Resistance(500 hrs)	ASTM D-4355	90%

FRONT VIEW
NTS



PLAN VIEW
NTS

NOTES
1. THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED. (SEE FABRIC SPECIFICATIONS ABOVE)
2. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
3. POST ARE TO BE 2"x2" FIR, PINE OR STEEL FENCE POSTS.
4. POST TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
5. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
6. SEDIMENT FENCE TO BE SPACED ON SLOPES PER TABLE BELOW.



PROFILE
NTS

INSTALL PARALLEL ALONG CONTOURS AS FOLLOWS

% SLOPE	SLOPE	MAX. SPACING ON SLOPE
10% FLATTER	10:1 OR FLATTER	300 ft.
10>%<15	10:1>x<7.5:1	150 ft.
15>%<20	7.5:1>x<5:1	100 ft.
20>%<30	5:1>x<3.5:1	50 ft.
30>%<50	3.5:1>x<2:1	25 ft.

NO.	REVISIONS	DATE	BY

DWG: E-4.DWG

Department of Public Works
CLARK COUNTY WASHINGTON
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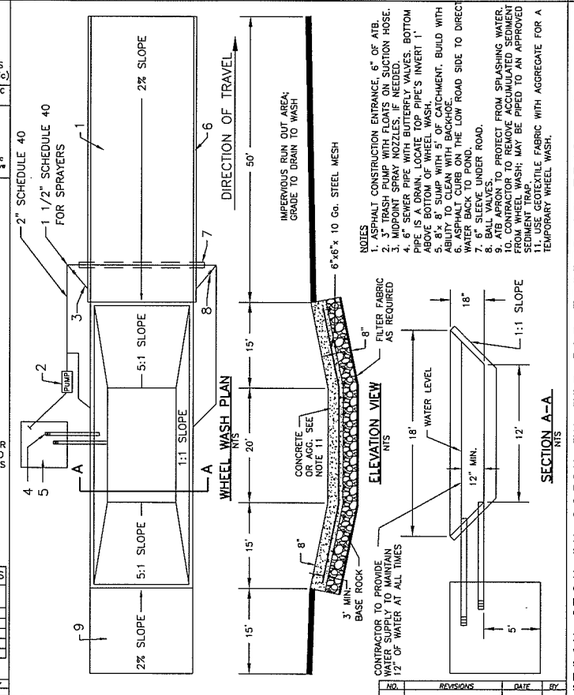
STANDARD SEDIMENT FENCE

APPROVED
Peter Capen — COUNTY ENGINEER — 01/01/04 DATE

STANDARD E-4
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03



NOTES
1. ASPHALT CONSTRUCTION ENTRANCE. 6" OF ATB.
2. 3" TRASH PUMP WITH FLOATS ON SUCTION HOSE.
3. MIDPOINT SPRAY NOZZLES, IF NEEDED.
4. 6" SCHEDULE 40 PERFORATED PVC PIPE. BOTTOM PIPE IS A DRAIN. LOCATE TOP PIPE'S INVERT 1' ABOVE BOTTOM OF WHEEL WASH.
5. 8"x 8' SUMP WITH 5' OF CATCHMENT. BUILD WITH ROTATED 2"x4"s AS SHOWN. SLOPE TO PUMP.
6. ASPHALT CURB ON THE LOW ROAD SIDE TO DIRECT WATER BACK TO POND.
7. 6" SLEEVE UNDER ROAD.
8. ATB APRON TO PROTECT FROM SPLASHING WATER.
9. CONTRACTOR TO REMOVE ACCUMULATED SEDIMENT FROM WHEEL WASH; MAY BE PIPED TO AN APPROVED SEDIMENT TRAP.
10. USE GEOTEXTILE FABRIC WITH AGGREGATE FOR A TEMPORARY WHEEL WASH.

NO.	REVISIONS	DATE	BY

DWG: E-15

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WHEEL WASH

APPROVED
Peter Capen — COUNTY ENGINEER — 01/01/04 DATE

STANDARD E-15
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/12/02

STANDARD NOTES FOR EROSION CONTROL PLAN (CONTINUED)

13. All conveyance channels, both temporary and permanent shall be stabilized to prevent erosion of the channel. Stabilization shall extend to areas at outlets and downstream reaches vulnerable to erosion resulting from flow discharging from the channel.

14. If BMP's shown are utilized but are insufficient to prevent sediment from reaching water bodies, adjacent properties, or public rights-of-way; additional BMP's shall be implemented immediately to prevent further encroachment of sediment.

15. Stabilized areas shall be provided for employee parking and storage of construction materials. Erodeable stockpiles of earthen materials, such as topsoil, silty and clayey soils; and landscape materials, shall be covered when not being incorporated in the work. Erosion control BMP's shall be utilized as necessary to prevent sediment laden runoff from leaving or sediment being transported from these areas from vehicle activity.

16. All pollutants other than sediment that occur during construction shall be handled and disposed of in a manner that does not cause contamination of storm water.

17. The Contractor shall keep an inspection log of the condition of the erosion control facilities. Erosion control facilities shall be inspected at least weekly and after each rainfall. The inspection log shall be kept at the project site at a designated location and shall be available for review by the County. An individual that has successfully completed the County's Erosion Control Certification course shall perform inspections and maintain the log.

18. All temporary BMP's shall be removed within 30 days after final site stabilization is achieved. Trapped sediment shall be deposited and stabilized on site. Areas disturbed resulting from removal shall be permanently stabilized.

19. Construction shall not be considered complete and acceptable until all disturbed soil surfaces have been protected from erosion with permanent landscaping, covering with impervious surfaces, restored to original undisturbed condition or permanently stabilized.

20. Vegetated stabilization and landscaping shall be fertilized, watered and maintained to insure that growth of vegetation is established and sustained.

21. During dry weather construction periods the contractor shall provide project-specific dust control measures that may include: Seeding, Mulching, Matting, Water, Tackifier, or Chemical Soil Stabilizers. The contractor shall maintain the dust control measures through dry weather periods until all disturbed areas have been stabilized. Immediately re-stabilize areas disturbed by contractor's operations or other activities (wind, water, vandalism, etc.).

22. Entry onto the construction site shall be restricted to a single approved entrance as shown on the plan.

23. Maintenance and repair of heavy equipment and vehicles which involve potential contaminants (oil,solvents,hydraulic fluid, etc.) must be conducted in a manner which prevents contamination of soils, surface water and ground water. Tarps, drip pans, or other appropriate measures shall be used as necessary.

24. Stripping, topsoil, and unsuitable material stockpiles shall be hydroseeded with "regreen wheat x wheat grass hybrid" by Hobbs and Hobkins (or approved equal). Maintenance of stockpile areas and reapplication of hydroseed covering shall be required if bare soil is present. During winter and wet weather conditions, stockpiles shall be covered with plastic sheeting per detail E-16.

SHEET 2 OF 2

NO.	REVISIONS	DATE	BY

DWG: ECN2.DWG

Department of Public Works
CLARK COUNTY WASHINGTON
proud past, promising future

STANDARD NOTES (CONTINUED) FOR EROSION CONTOL PLAN

APPROVED
Peter Capen — COUNTY ENGINEER — 01/01/04 DATE

STANDARD ECN2
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/22/02

DESIGNED MME
DRAWN KMB
CRP 301422
HOR. NA
VERT. NA
DATE 3/29/04
DWG: EC04
SHEET OF

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

MICHAEL M. BERRICK
STATE OF WASHINGTON
26030
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
EROSION CONTROL DETAILS

PRELIMINARY

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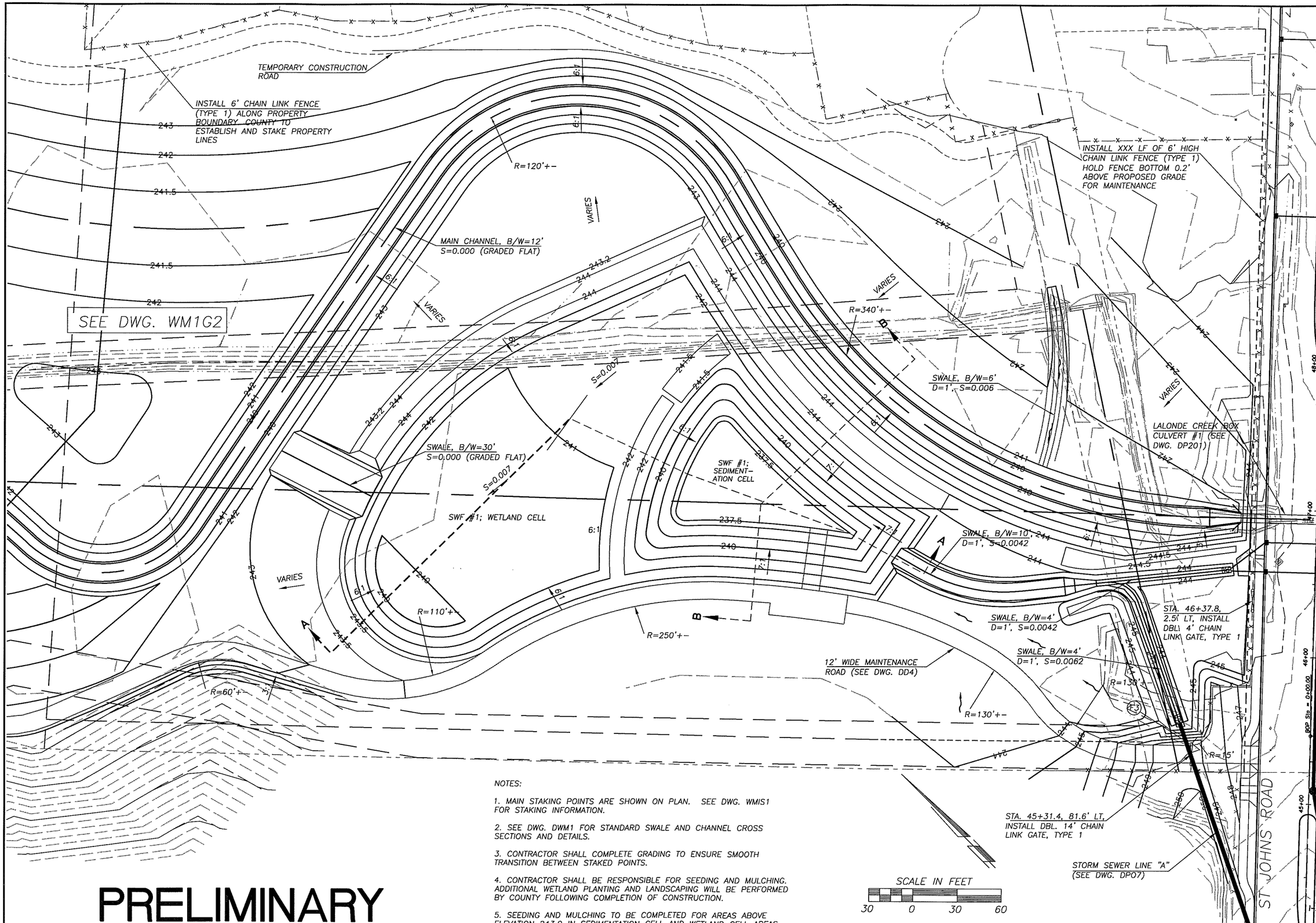

NOTES:

1. MAIN STAKING POINTS ARE SHOWN ON PLAN. SEE DWG. WMIS1 FOR STAKING INFORMATION.

2. SEE DWG. DWM1 FOR STANDARD SWALE AND CHANNEL CROSS SECTIONS AND DETAILS.

3. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. ADDITIONAL WETLAND PLANTING AND LANDSCAPING WILL BE PERFORMED BY COUNTY FOLLOWING COMPLETION OF CONSTRUCTION.

5. SEEDING AND MULCHING TO BE COMPLETED FOR AREAS ABOVE ELEVATION 243.0 IN SEDIMENTATION CELL AND WETLAND CELL AREAS

PRELIMINARY

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM1G1
SHEET	OF

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

STATE OF WASHINGTON MILLIE MARIE JOHNSON REGISTERED PROFESSIONAL ENGINEER 37148 EXPIRES JULY 1, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #1; GRADING (SHT. 1 OF 2)

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CLARK COUNTY WASHINGTON

I-2

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NOTES:

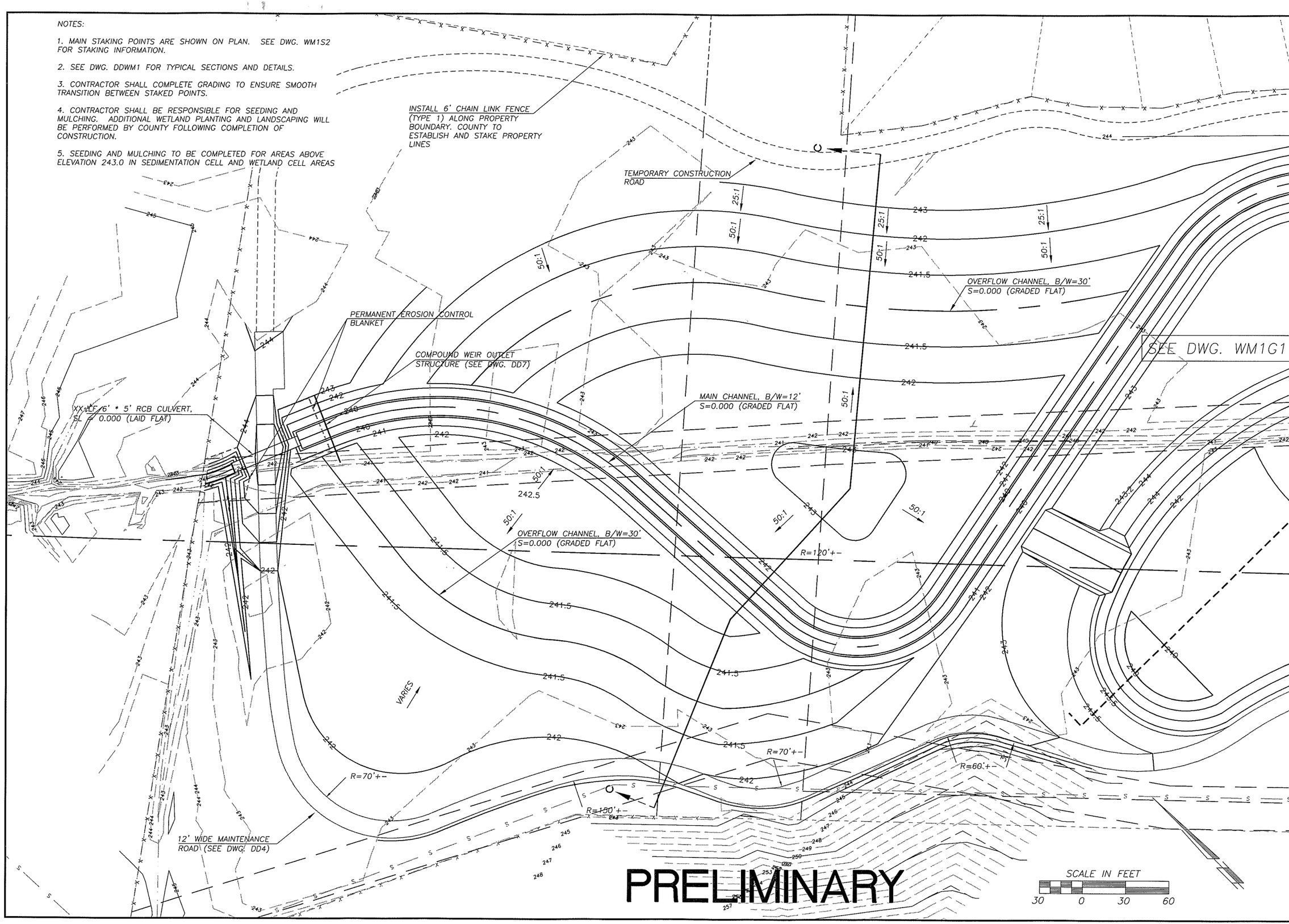
1. MAIN STAKING POINTS ARE SHOWN ON PLAN. SEE DWG. WM1S2 FOR STAKING INFORMATION.

2. SEE DWG. DDWM1 FOR TYPICAL SECTIONS AND DETAILS.

3. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. ADDITIONAL WETLAND PLANTING AND LANDSCAPING WILL BE PERFORMED BY COUNTY FOLLOWING COMPLETION OF CONSTRUCTION.

5. SEEDING AND MULCHING TO BE COMPLETED FOR AREAS ABOVE ELEVATION 243.0 IN SEDIMENTATION CELL AND WETLAND CELL AREAS



PRELIMINARY

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM1G2
SHEET	OF

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

STATE OF WASHINGTON JOHN MILLER 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #1; GRADING (SHT. 2 OF 2)

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CLARK COUNTY WASHINGTON

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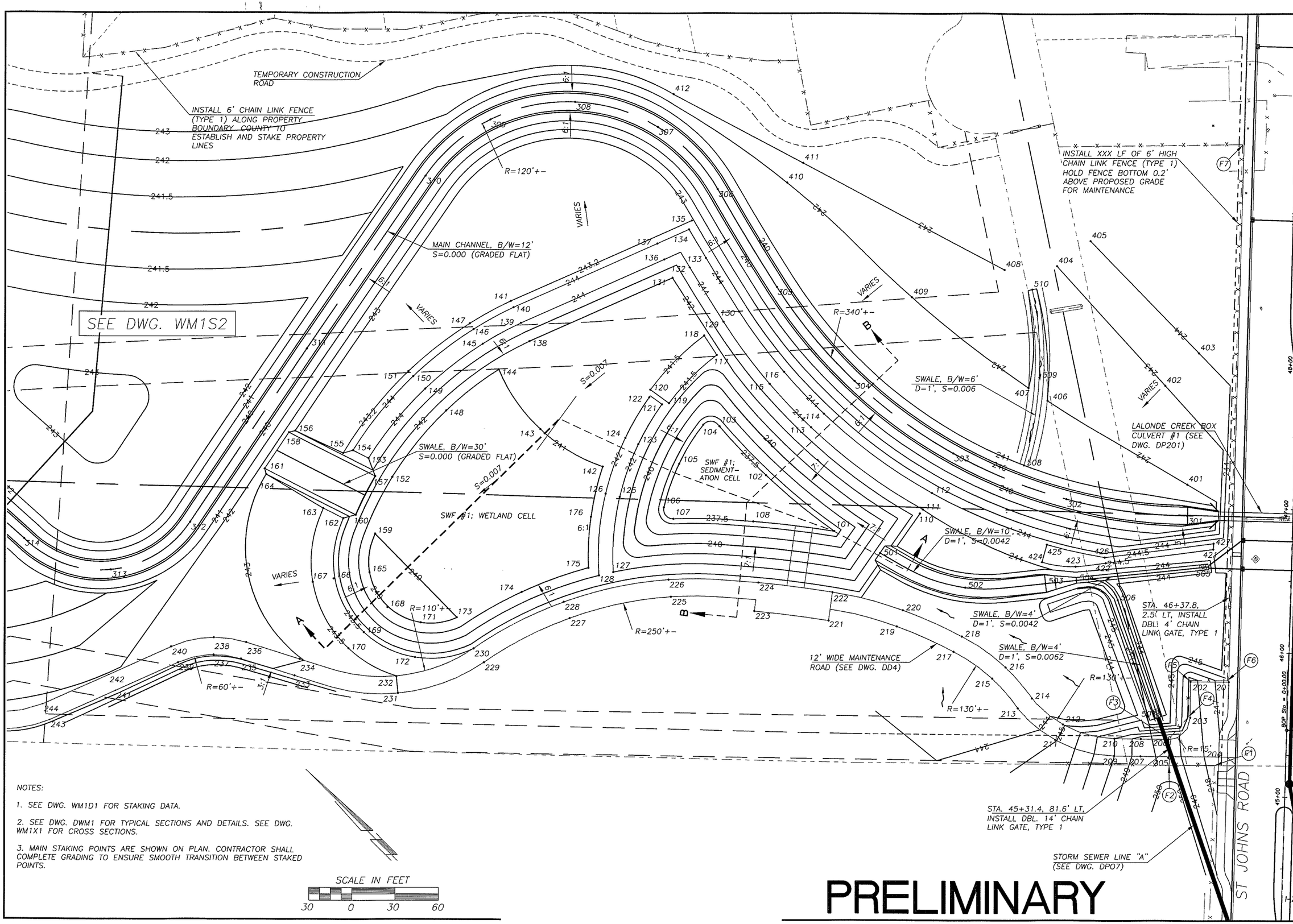

NOTES:

1. SEE DWG. WM1D1 FOR STAKING DATA.
2. SEE DWG. DWM1 FOR TYPICAL SECTIONS AND DETAILS. SEE DWG. WM1X1 FOR CROSS SECTIONS.
3. MAIN STAKING POINTS ARE SHOWN ON PLAN. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.

PRELIMINARY

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM1S1
SHEET	OF

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

STATE OF WASHINGTON MARK E. MCCOLLOUGH 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #1; STAKING (SHT. 1 OF 2)

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CLARK COUNTY WASHINGTON

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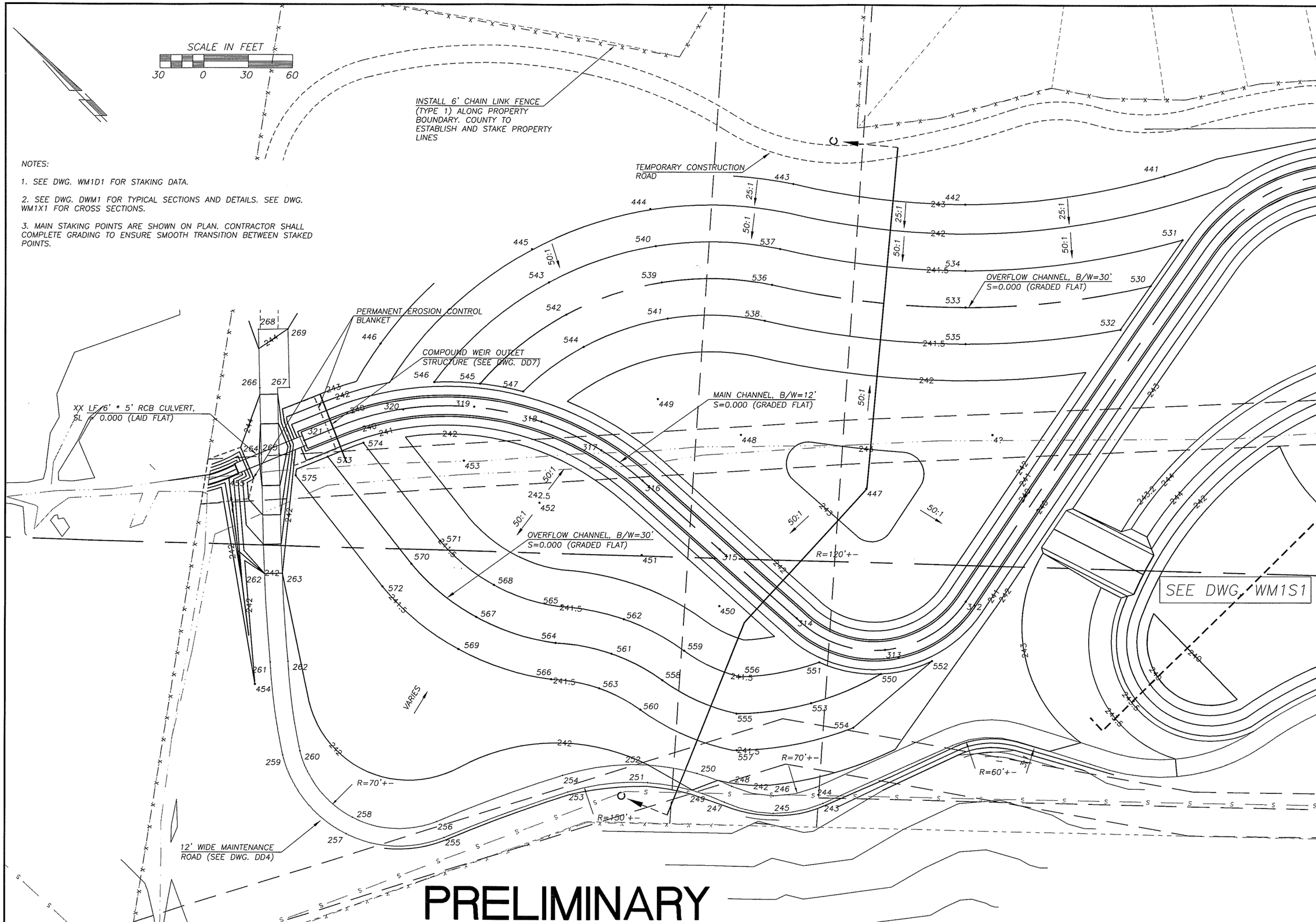

NOTES:

1. SEE DWG. WM1D1 FOR STAKING DATA.
2. SEE DWG. DWM1 FOR TYPICAL SECTIONS AND DETAILS. SEE DWG. WM1X1 FOR CROSS SECTIONS.
3. MAIN STAKING POINTS ARE SHOWN ON PLAN. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.

PRELIMINARY

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM1S2
SHEET	OF

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

STATE OF WASHINGTON JOHN MILNE REGISTERED PROFESSIONAL ENGINEER EXPIRES 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #1; STAKING (SHT. 2 OF 2)

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CLARK COUNTY WASHINGTON

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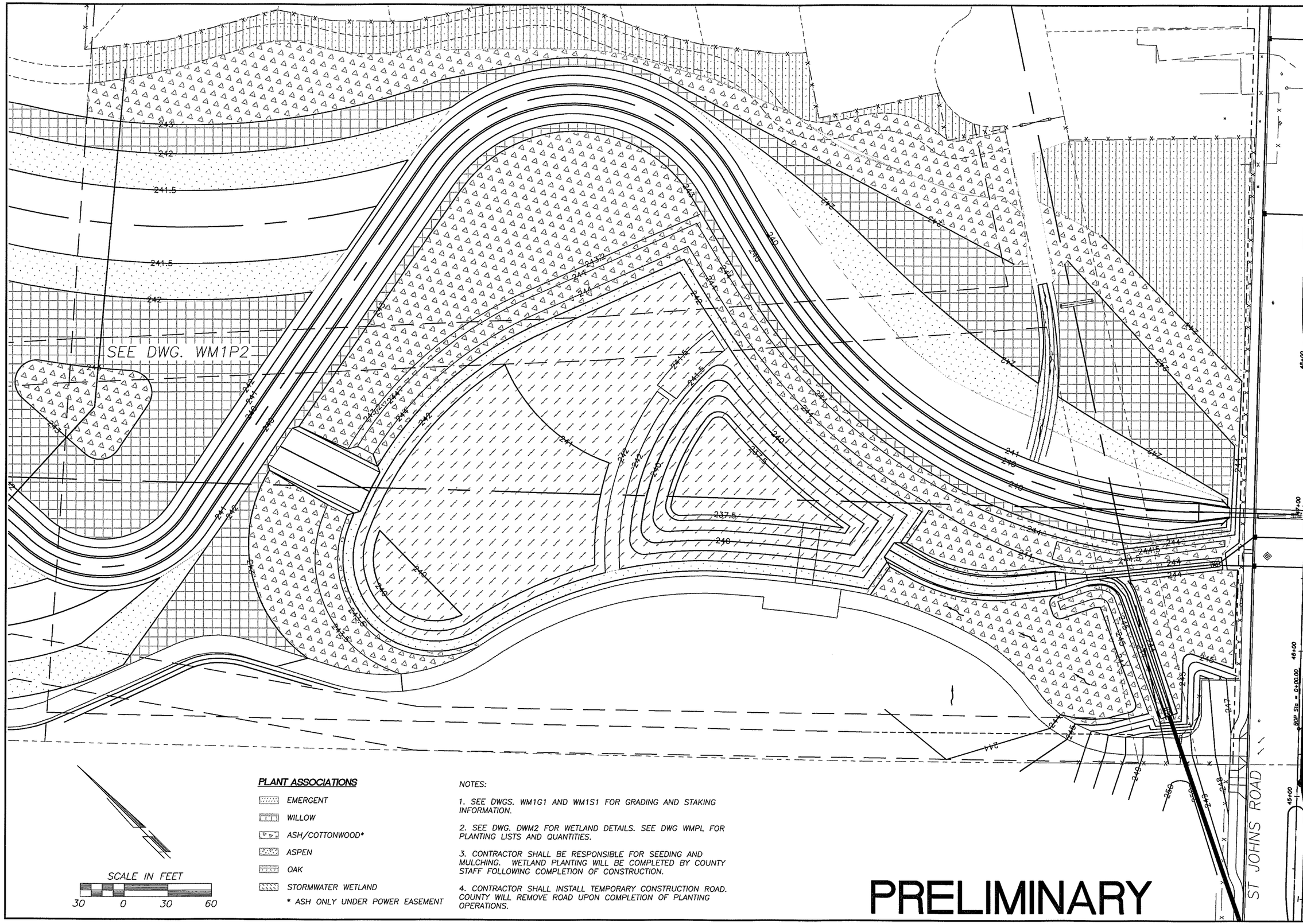

PLANT ASSOCIATIONS

- EMERGENT
- WILLOW
- ASH/COTTONWOOD*
- ASPEN
- OAK
- STORMWATER WETLAND

* ASH ONLY UNDER POWER EASEMENT

NOTES:

1. SEE DWGS. WM1G1 AND WM1S1 FOR GRADING AND STAKING INFORMATION.
2. SEE DWG. DWM2 FOR WETLAND DETAILS. SEE DWG WMPL FOR PLANTING LISTS AND QUANTITIES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. WETLAND PLANTING WILL BE COMPLETED BY COUNTY STAFF FOLLOWING COMPLETION OF CONSTRUCTION.
4. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ROAD. COUNTY WILL REMOVE ROAD UPON COMPLETION OF PLANTING OPERATIONS.

PRELIMINARY

DESIGNED	MME/JM
DRAWN	RRK
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG.	WM1P1
SHEET	OF

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

STATE OF WASHINGTON
JOHN MILNE
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #1; PLANTING (SHT. 1 OF 2)

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CLARK COUNTY
WASHINGTON

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PLANT ASSOCIATIONS

- EMERGENT
- WILLOW
- ASH/COTTONWOOD*
- ASPEN
- OAK
- STORMWATER WETLAND

* ASH ONLY UNDER POWER EASEMENT

NOTES:

1. SEE DWGS. WM1G1 AND WM1S1 FOR GRADING AND STAKING INFORMATION.
2. SEE DWG. DWM2 FOR WETLAND DETAILS. SEE DWG WMPL FOR PLANTING LISTS AND QUANTITIES.
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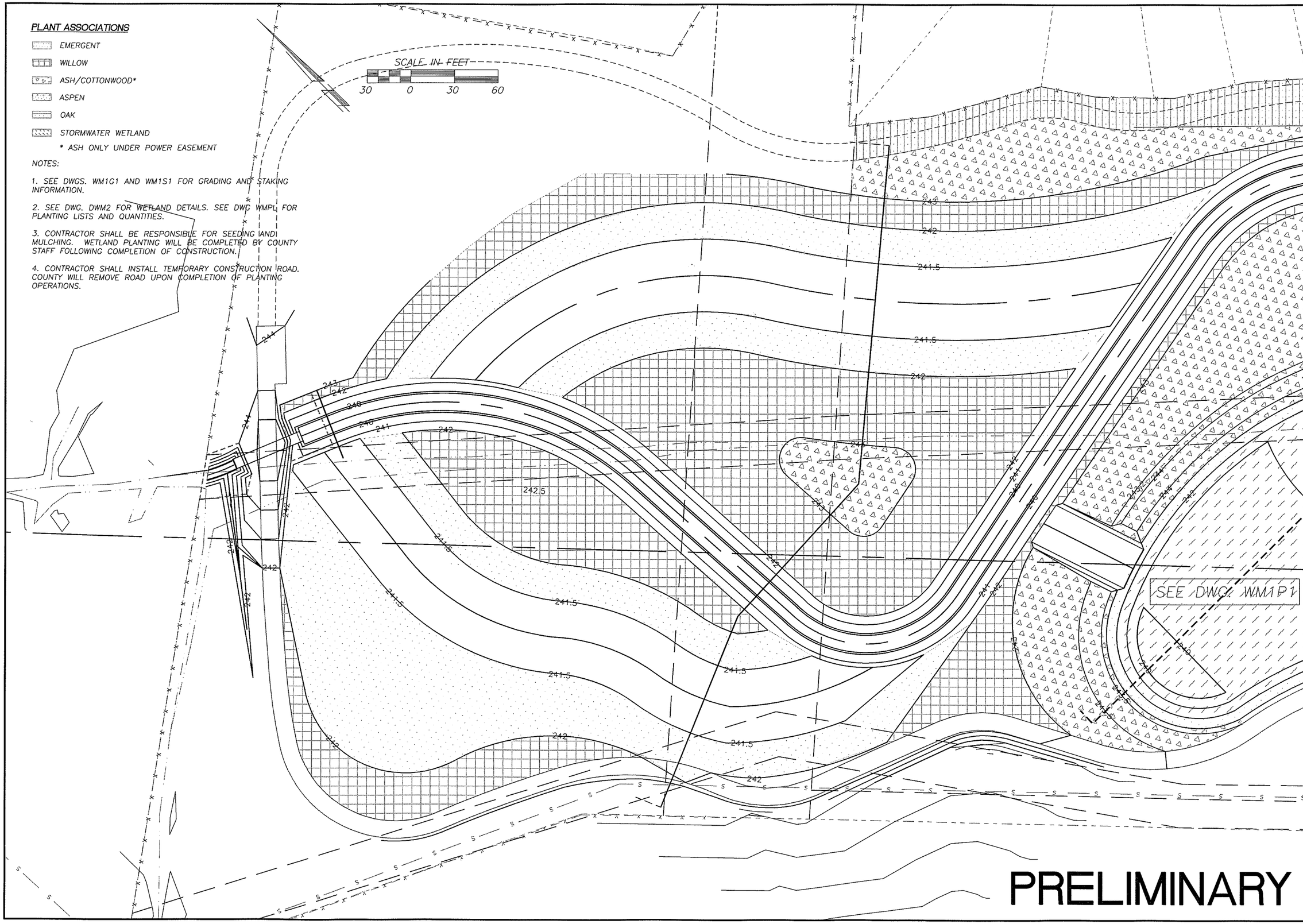
4. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ROAD. COUNTY WILL REMOVE ROAD UPON COMPLETION OF PLANTING OPERATIONS.



PRELIMINARY

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG.	WM1P2
SHEET	OF

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

JOHN M. LAMB STATE OF WASHINGTON 37145 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #1; PLANTING (SHT. 2 OF 2)

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CLARK COUNTY WASHINGTON

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SCALE IN FEET

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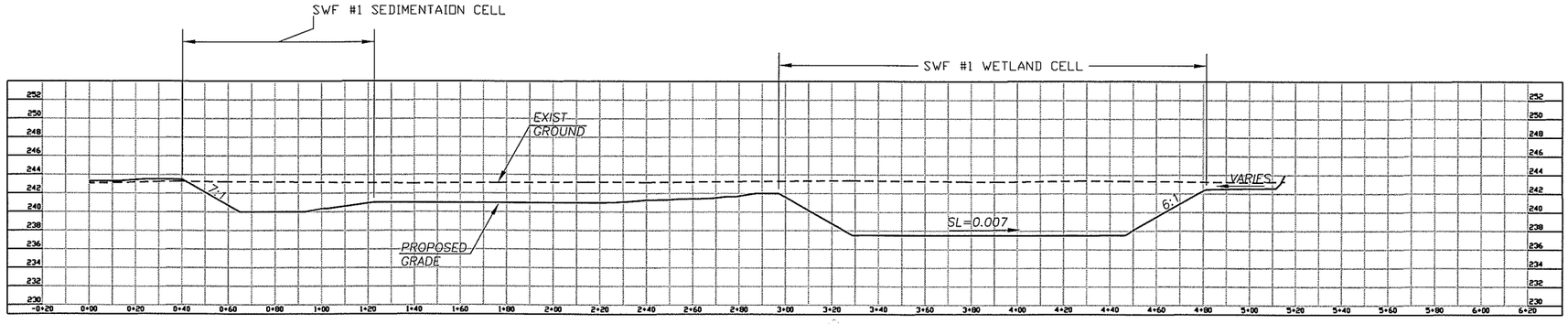
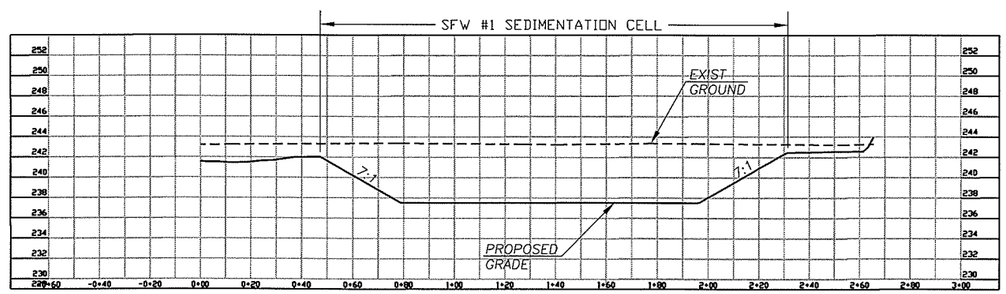
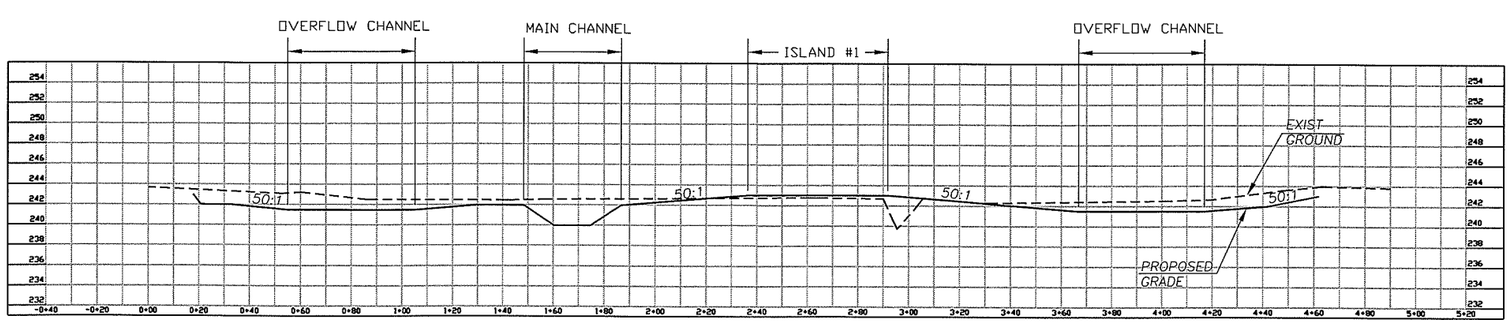


SECTION A-A



SECTION B-B



SECTION C-C

NOTES:
1. SEE SHEET DWM1 FOR TYPICAL CROSS SECTIONS AND DETAILS.

2. SEE SHEETS WM1 "G", "S", AND "P" DWGS FOR GRADING, STAKING, AND PLANTING PLANS.

3. SEE SHEET D1 FOR STAKING POINT DATA.

PRELIMINARY

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	1"=3'
DATE	11/29/04
DWG:	WM1X1
SHEET	OF

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

STATE OF WASHINGTON MILLINE TODD REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #1: CROSS SECTIONS

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CLARK COUNTY WASHINGTON

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WETLAND MITIGATION AREA #1

SWF1 GRADING

POINT	NORTHING	EASTING	ELEV
101	139918.43	1100949.61	237.50
102	139979.35	1100943.40	237.50
103	140026.00	1100944.48	237.50
104	140034.69	1100937.33	237.50
105	140027.32	1100906.27	237.50
106	140013.48	1100877.50	237.50
107	140003.13	1100876.58	237.50
108	139962.90	1100914.51	237.50
110	139885.01	1101000.34	243.50
111	139885.64	1101003.80	244.00
112	139889.24	1101016.29	244.00
113	139980.75	1100988.88	244.00
114	139981.15	1101001.87	244.00
115	140022.48	1100989.85	244.00
116	140021.48	1101002.81	244.00
117	140062.44	1100978.15	242.00
118	140078.15	1100981.44	242.00
119	140062.08	1100930.92	242.00
120	140077.87	1100928.34	242.00
121	140065.00	1100926.89	242.00
122	140074.67	1100924.04	242.00
123	140057.01	1100895.74	242.00
124	140066.43	1100892.40	242.00
125	140040.23	1100860.87	242.00
126	140048.72	1100855.59	242.00
127	140006.35	1100820.84	242.00
128	140011.72	1100812.25	242.00
129	140075.55	1100997.70	244.00
130	140072.89	1101010.43	244.00
131	140122.07	1100994.19	242.00
132	140118.70	1101007.80	244.00
133	140115.58	1101020.42	244.00
134	140137.72	1101026.05	244.00
135	140140.67	1101031.79	243.20
136	140135.15	1100999.19	244.00
137	140146.36	1101003.47	244.00
138	140160.77	1100892.98	242.00
139	140173.92	1100897.81	244.00
140	140185.20	1100901.89	244.00
141	140189.69	1100903.61	243.20
142	140063.35	1100867.37	241.00
143	140112.22	1100855.27	241.00
144	140161.79	1100864.05	241.00
145	140182.29	1100868.63	244.00
146	140194.00	1100871.24	244.00
147	140198.68	1100872.29	243.20
148	140167.38	1100817.85	241.00
149	140188.37	1100818.28	244.00
150	140200.37	1100818.53	244.00
151	140205.17	1100818.63	243.20
152	140161.11	1100759.03	241.00
153	140182.09	1100756.53	244.00
154	140193.54	1100752.77	244.00
155	140196.98	1100746.59	243.20
156	140231.50	1100734.00	243.00
157	140169.95	1100751.05	242.50
158	140233.78	1100730.07	242.50
159	140141.78	1100722.91	240.00
160	140160.58	1100722.55	242.50
161	140227.88	1100700.43	242.50
162	140164.96	1100714.80	243.50
163	140179.73	1100709.94	243.50
164	140224.35	1100698.44	243.00
165	140125.50	1100701.25	240.00
166	140140.13	1100680.52	243.50
167	140148.56	1100668.56	243.50
168	140099.46	1100692.80	240.00
169	140098.76	1100668.93	240.00
170	140098.31	1100653.43	243.50
171	140075.61	1100701.52	240.00
172	140061.27	1100681.64	243.50
173	140060.51	1100721.79	240.00
174	140041.24	1100766.38	241.00
175	140020.65	1100810.84	241.00
176	140044.56	1100837.17	241.00

MAINTENANCE ROAD GRADING

POINT	NORTHING	EASTING	ELEV
201	139650.80	1101069.56	246.56
202	139669.80	1101050.80	248.31
203	139652.24	1101033.01	248.46
204	139619.03	1101027.85	247.37
205	139643.35	1101002.61	249.50
206	139652.37	1101011.80	249.50
207	139657.61	1100989.76	249.50
208	139665.97	1100998.37	249.50
209	139670.57	1100976.96	248.00
210	139678.92	1100985.58	248.00
211	139707.47	1100955.79	244.90
212	139711.07	1100967.24	244.90
213	139741.35	1100952.80	243.82
214	139739.17	1100964.59	243.70
215	139768.55	1100954.83	243.72
216	139767.40	1100966.87	243.60
217	139800.56	1100949.03	243.62
218	139804.04	1100960.60	243.50
219	139840.55	1100933.70	243.62
220	139845.69	1100944.54	243.50
221	139877.05	1100902.85	243.70
222	139889.13	1100918.80	243.50
223	139918.22	1100871.08	243.70
224	139930.31	1100887.04	243.50
225	139965.98	1100837.09	243.62
226	139975.59	1100844.32	243.50
227	140005.00	1100776.91	243.62
228	140015.87	1100782.04	243.50
229	140024.96	1100713.01	243.62
230	140036.88	1100714.73	243.50
231	140051.94	1100655.77	243.50
232	140060.89	1100663.21	243.50
233	140111.46	1100613.59	243.10
234	140117.05	1100624.21	242.98
235	140145.68	1100595.57	242.85
236	140151.27	1100606.19	242.73
237	140160.99	1100584.15	242.66
238	140169.33	1100592.78	242.54
239	140174.46	1100563.04	242.47
240	140185.68	1100567.29	242.35
241	140191.30	1100518.63	242.16
242	140202.49	1100522.98	242.04
243	140209.06	1100471.80	242.38
244	140220.25	1100476.15	242.26
245	140228.10	1100443.22	242.50
246	140236.53	1100451.76	242.38
247	140257.09	1100424.81	242.20
248	140261.28	1100436.05	242.08
249	140278.36	1100415.16	242.00
250	140284.20	1100425.38	241.88
251	140303.28	1100397.19	242.12
252	140311.47	1100405.97	242.00
253	140336.93	1100354.36	242.32
254	140347.57	1100359.92	242.20
255	140374.18	1100272.74	242.32
256	140385.48	1100276.79	242.20
257	140423.22	1100227.34	242.32
258	140428.29	1100238.30	242.20
259	140491.69	1100234.80	242.32
260	140485.45	1100245.05	242.20
261	140542.46	1100273.49	242.22
262	140534.44	1100282.42	242.10
263	140579.65	1100322.06	242.00
264	140647.17	1100369.31	245.80
265	140638.89	1100378.00	245.80
266	140679.78	1100400.34	243.90
267	140665.93	1100414.78	243.70
268	140708.69	1100427.87	244.20
269	140694.90	1100442.35	244.00
270	140587.92	1100313.37	242.00

MAIN CHANNEL GRADING

POINT	NORTHING	EASTING	ELEV
301	139752.98	1101130.84	239.80
302	139820.38	1101079.41	239.80
303	139898.35	1101046.14	239.80
304	139982.11	1101033.05	239.80
305	140066.51	1101040.97	239.80
306	140143.50	1101059.86	239.80
307	140203.29	1101060.57	239.80
308	140255.94	1101032.38	239.80
309	140288.55	1100982.14	239.80
310	140292.85	1100922.67	239.80
311	140266.20	1100780.15	239.80
312	140237.83	1100637.96	239.80
313	140253.13	1100575.72	239.80
314	140311.06	1100548.31	239.80
315	140381.42	1100544.16	239.80
316	140451.77	1100540.01	239.80
317	140485.84	1100534.93	239.80
318	140528.47	1100519.71	239.80
319	140567.93	1100494.34	239.80
320	140600.46	1100459.04	239.80
321	140633.34	1100396.56	239.80

GENERAL GRADING

POINT	NORTHING	EASTING	ELEV
401	139768.47	1101145.91	244.50
402	139827.77	1101183.41	244.50
403	139827.15	1101215.97	244.50
404	139939.55	1101188.88	244.50
405	139935.38	1101217.58	244.50
406	139878.02	1101118.17	244.50
407	139893.60	1101115.05	244.50
408	139963.56	1101161.18	244.50
409	139995.24	1101102.34	244.50
410	140112.81	1101097.03	244.50
411	140114.50	1101114.46	244.50
412	140211.64	1101084.45	244.50
413	139723.79	1101126.90	244.50
414	139769.54	1101067.40	244.50
415	139782.68	1101050.84	244.50
416	139801.42	1101036.51	244.50
417	139807.61	1101047.46	244.50
418	139772.79	1101069.74	244.50
419	139726.46	1101130.00	244.50
441	140347.68	1100937.90	243.00
442	140429.61	1100828.55	243.00
443	140522.25	1100755.39	243.00
444	140579.07	1100674.25	242.00
445	140616.31	1100598.22	242.00
446	140643.26	1100479.82	243.00
447	140340.21	1100644.14	243.60
448	140426.47	1100609.54	242.80
449	140483.64	1100586.53	242.40
450	140305.54	1100730.84	242.80
451	140416.11	1100503.85	242.40
452	140490.37	1100479.90	242.60
453	140546.86	1100463.44	242.40
454	140539.10	1100255.53	242.00
455	140651.06	1100342.19	240.00
456	140354.24	1100516.72	242.20

SWALE GRADING

POINT	NORTHING	EASTING	ELEV
501	139885.03	1100961.51	242.50
502	139826.53	1100986.30	242.77
503	139789.11	1101027.74	242.97
504	139775.49	1101044.57	243.07
505	139717.68	1101116.05	243.44
506	139745.50	1101055.17	243.21
507	139668.08	1101017.36	243.83
508	139857.93	1101074.93	241.00
509	139893.35	1101125.51	241.35
510	139940.20	1101165.20	241.70
530	140301.29	1100878.66	241.50
531	140308.27	1100916.18	241.50
532	140294.68	1100843.10	241.50
533	140379.96	1100779.21	241.50
534	140397.70	1100796.83	241.50
535	140362.23	1100761.58	241.50
536	140483.86	1100696.86	241.50
537	140497.29	1100717.95	241.50
538	140469.96	1100676.05	241.50
539	140538.18	1100644.53	241.50
540	140558.52	1100659.07	241.50
541	140517.85	1100629.98	241.50
542	140568.18	1100583.29	241.50
543	140592.13	1100590.44	241.50
544	140544.22	1100576.14	241.50
545	140576.21	1100508.24	241.50
546	140598.83	1100487.02	241.50
547	140551.81	1100525.39	241.50
550	140243.51	1100562.06	241.50
551	140278.99	1100537.91	241.50
552	140225.15	1100593.05	241.50
553	140263.08	1100514.43	241.50
554	140230.90	1100522.83	241.50
555	140294.06	1100473.30	241.50
556	140309.99	1100492.79	241.50
557	140276.17	1100455.83	241.50
558	140345.78	1100453.46	241.50
559	140349.64	1100478.16	241.50
560	140341.92	1100428.76	241.50
561	140382.75	1100441.95	241.50
562	140393.59	1100464.48	241.50
563	140371.92	1100419.42	241.50
564	140414.82	1100420.25	241.50
565	140430.08	1100441.12	241.50
566	140399.43	1100400.56	241.50
567	140465.48	1100394.27	241.50
568	140472.50	1100418.26	241.50
569	140458.47	1100370.27	241.50
570	140522.17	1100388.87	241.50
571	140519.50	1100413.73	241.50
572	140525.15	1100364.05	241.50
573	140614.32	1100399.96	241.50
574	140603.72	1100423.87	241.50
575	140620.62	1100375.54	241.50

DESIGNED MME/JM
DRAWN KMB
CRP 301422
HOR. NA
VERT. NA
DATE 11/29/04
DWG: WM1D1
SHEET OF

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DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #1; STAKING DATA

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CLARK COUNTY
WASHINGTON

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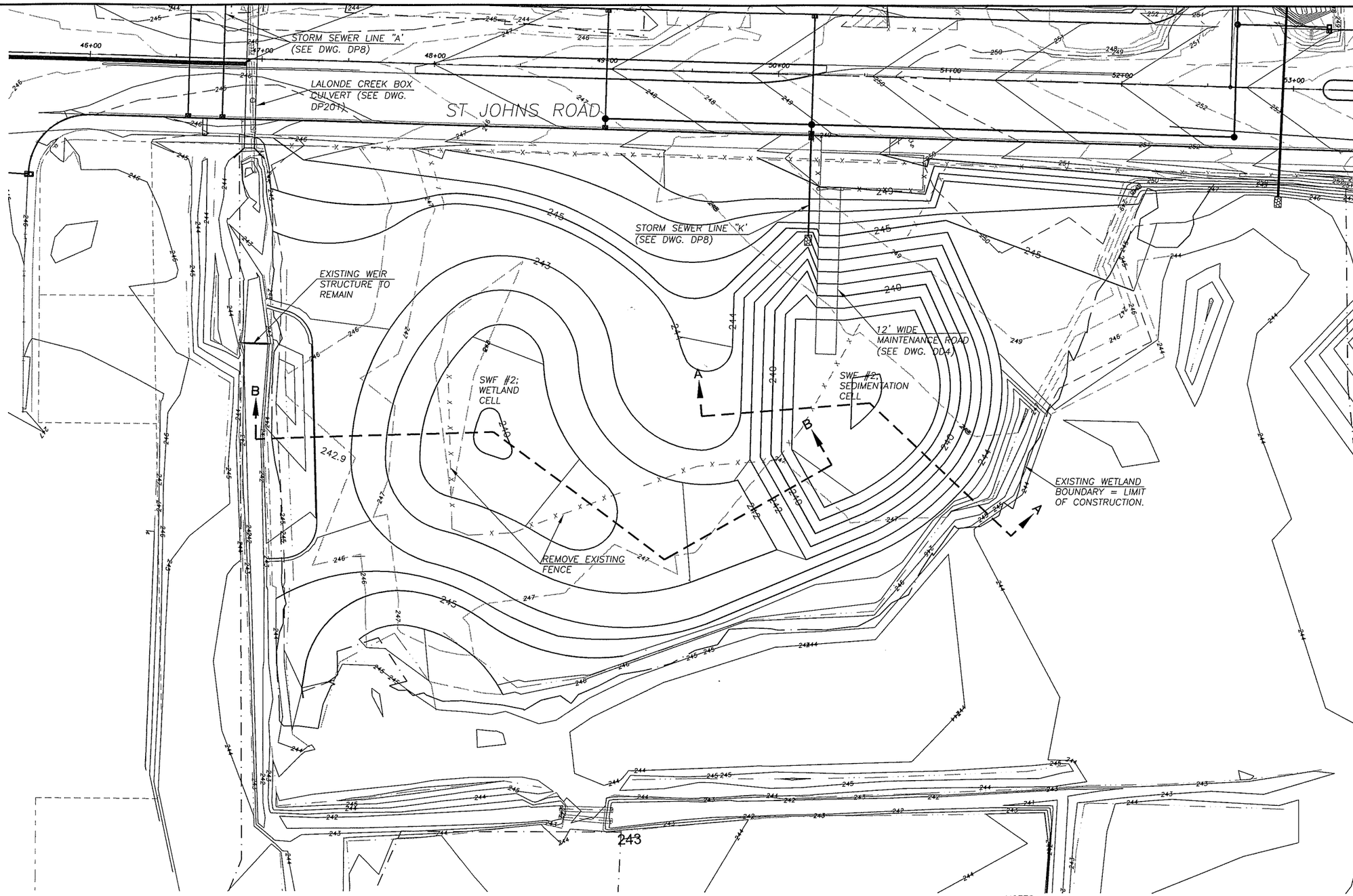

PRELIMINARY

SCALE IN FEET

30 0 30 60

NOTES:

1. MAIN STAKING POINTS ARE SHOWN ON PLAN. SEE DWG. WM2S1 FOR STAKING INFORMATION.

2. SEE DWG. DWM1 FOR STANDARD SWALE AND CHANNEL CROSS SECTIONS AND DETAILS.

3. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. ADDITIONAL WETLAND PLANTING AND LANDSCAPING WILL BE PERFORMED BY COUNTY FOLLOWING COMPLETION OF CONSTRUCTION.

5. SEEDING AND MULCHING TO BE COMPLETED FOR AREAS ABOVE ELEVATION 243.0 IN SEDIMENTATION CELL AND WETLAND CELL AREAS

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM2G
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
1-800-553-4344
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STATE OF WASHINGTON
MICHAEL MOSER
21148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
STORMWATER FACILITY #2; GRADING PLAN

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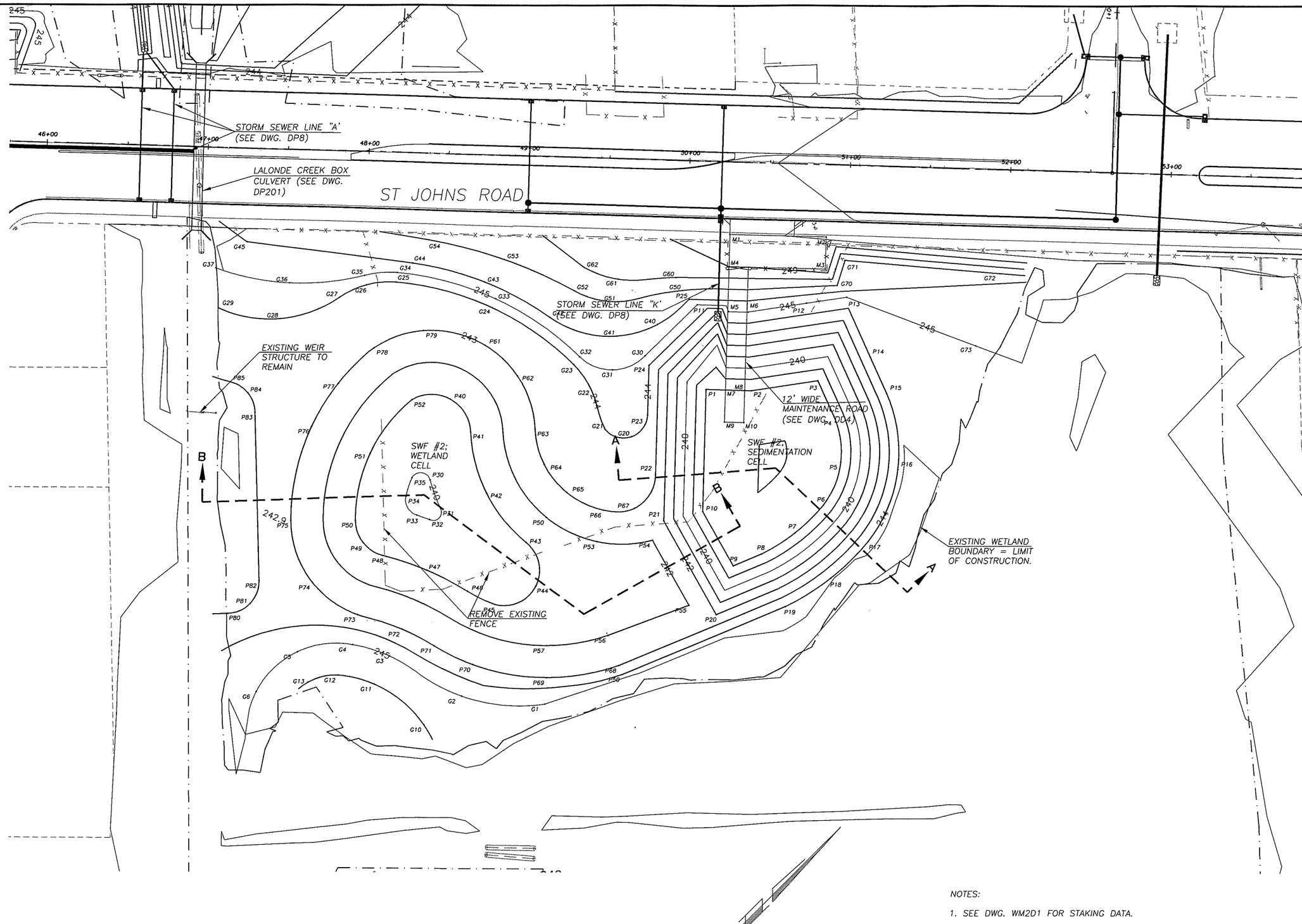

PRELIMINARY

SCALE IN FEET

30 0 30 60

NOTES:

1. SEE DWG. WM2D1 FOR STAKING DATA.

2. SEE DWG. DWM1 FOR TYPICAL SECTIONS AND DETAILS. SEE DWG. WM2X1 FOR CROSS SECTIONS.

3. MAIN STAKING POINTS ARE SHOWN ON PLAN. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM2S
SHEET	OF

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STATE OF WASHINGTON
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
STORMWATER FACILITY #2; STAKING PLAN

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PLANT ASSOCIATIONS

- EMERGENT
- WILLOW
- ASH/COTTONWOOD
- ASPEN
- OAK
- STORMWATER WETLAND

NOTES:

1. SEE DWGS. WM2G AND WM2S FOR GRADING AND STAKING INFORMATION.

2. SEE DWG. DWM2 FOR WETLAND DETAILS. SEE DWG WMPL FOR PLANTING LISTS AND QUANTITIES.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. WETLAND PLANTING WILL BE COMPLETED BY COUNTY STAFF FOLLOWING COMPLETION OF CONSTRUCTION.

SCALE IN FEET

30 0 30 60

PRELIMINARY

DESIGNED	MME/JM
DRAWN	KMB
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM2P
SHEET	OF

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ST. JOHNS RD (NE 50TH TO NE 72ND)
STORMWATER FACILITY #2; PLANTING PLAN

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WASHINGTON

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WMA2

POND GRADING

POINT	NORTHING	EASTING	ELEV
2P1	139816.89	1101511.65	238
2P2	139836.29	1101532.12	238
2P3	139869.87	1101557.01	238
2P4	139861.20	1101580.08	238
2P5	139844.09	1101603.21	238
2P6	139817.58	1101614.37	238
2P7	139792.97	1101614.05	238
2P8	139768.97	1101608.59	238
2P9	139751.26	1101601.36	238
2P10	139761.74	1101563.90	238
2P11	139850.36	1101470.34	245
2P12	139899.05	1101517.65	245
2P13	139919.49	1101532.80	245
2P14	139903.56	1101569.68	245
2P15	139894.77	1101593.07	245
2P16	139866.34	1101631.51	245
2P17	139821.54	1101650.16	245
2P18	139788.72	1101649.80	245
2P19	139756.28	1101642.29	245
2P20	139722.38	1101615.48	242
2P21	139740.42	1101551.05	242
2P22	139757.04	1101527.03	243
2P23	139779.59	1101497.40	244
2P24	139802.25	1101475.93	244
2P25	139849.20	1101464.33	246
2P30	139655.35	1101430.34	240
2P31	139647.42	1101447.60	240
2P32	139637.68	1101447.55	240
2P33	139633.93	1101439.98	240
2P34	139637.41	1101427.01	240
2P35	139648.21	1101421.44	240
2P40	139699.85	1101403.58	241
2P41	139694.46	1101427.04	241
2P42	139674.53	1101460.95	241
2P43	139670.24	1101500.04	241
2P44	139655.38	1101523.61	241
2P45	139629.28	1101513.85	241
2P46	139623.08	1101496.05	241
2P47	139614.22	1101468.69	241
2P48	139601.24	1101443.03	241
2P49	139598.09	1101428.58	241
2P50	139604.50	1101415.26	241
2P51	139640.29	1101392.34	241
2P52	139682.45	1101386.96	241
2P53	139701.69	1101530.77	242
2P54	139726.96	1101554.62	242
2P55	139714.46	1101599.27	242
2P56	139665.38	1101577.11	242
2P57	139633.90	1101554.82	242
2P58	139654.32	1101600.64	244
2P59	139690.13	1101498.01	242
2P61	139738.96	1101394.99	243
2P62	139739.66	1101423.01	243
2P63	139723.93	1101454.09	243
2P64	139712.49	1101473.55	243
2P65	139710.03	1101495.98	243
2P66	139718.46	1101519.87	243
2P67	139733.11	1101532.64	243
2P68	139656.75	1101595.15	243
2P69	139619.75	1101568.96	243
2P70	139593.02	1101530.73	243
2P70	139920.36	1101523.35	247
2P71	139584.18	1101505.36	243
2P71	139934.90	1101515.84	247
2P72	139577.24	1101483.92	243
2P72	139997.77	1101589.93	247
2P73	139563.95	1101458.04	243
2P73	139955.25	1101611.14	245
2P74	139558.36	1101423.92	243
2P75	139576.13	1101387.06	243
2P76	139626.64	1101354.75	243
2P77	139657.27	1101347.48	243
2P78	139688.76	1101347.40	243
2P79	139718.18	1101361.53	243
2P80	139507.47	1101400.26	243
2P81	139521.76	1101405.75	243
2P82	139535.75	1101399.53	243
2P83	139607.95	1101323.53	243
2P84	139613.34	1101311.86	243
2P85	139610.51	1101299.32	243

GENERAL

POINT	NORTHING	EASTING	ELEV
2G1	139607.33	1101579.91	245
2G2	139574.22	1101539.77	245
2G3	139559.95	1101490.41	245
2G4	139548.56	1101469.01	245
2G5	139521.22	1101447.98	245
2G6	139485.54	1101447.42	245
2G7	139544.79	1101535.75	246
2G8	139540.69	1101496.04	246
2G9	139528.72	1101476.18	246
2G10	139512.50	1101466.17	246
2G20	139762.90	1101499.64	244
2G21	139754.58	1101484.99	244
2G22	139764.74	1101464.32	244
2G23	139769.31	1101442.54	244
2G24	139758.63	1101381.56	244
2G25	139727.38	1101328.12	244
2G26	139713.03	1101316.22	244
2G27	139695.52	1101309.82	244
2G28	139660.24	1101293.26	244
2G29	139637.85	1101261.36	244
2G30	139804.61	1101469.95	245
2G31	139784.11	1101461.89	245
2G32	139775.31	1101441.68	245
2G33	139731.94	1101324.22	245
2G35	139716.32	1101311.19	245
2G36	139680.11	1101281.52	245
2G37	139654.29	1101242.47	245
2G40	139823.98	1101461.54	246
2G41	139800.89	1101448.83	246
2G42	139779.70	1101411.07	246
2G43	139766.58	1101366.71	246
2G44	139743.02	1101326.90	246
2G45	139679.49	1101244.67	246
2G50	139850.17	1101457.53	247
2G51	139816.27	1101433.81	247
2G52	139802.18	1101410.44	247
2G53	139785.06	1101365.42	247
2G54	139760.54	1101323.96	247
2G60	139852.97	1101448.94	248
2G61	139826.65	1101424.43	248
2G62	139816.66	1101404.02	248

MAINTENANCE ROAD GRADING

POINT	NORTHING	EASTING	ELEV
2M1	139895.56	1101453.65	249.3
2M2	139936.83	1101497.20	250.3
2M3	139922.31	1101510.96	249.3
2M4	139881.04	1101467.40	249
2M5	139861.08	1101487.04	245
2M6	139869.51	1101495.94	245
2M7	139825.15	1101520.36	238
2M8	139833.40	1101529.07	238
2M9	139810.63	1101534.12	238
2M10	139818.87	1101542.84	238

DESIGNED MME/JM
DRAWN KMB
CRP 301422
HOR. 1"=30'
VERT. NA
DATE 11/29/04
DWG: WM2D1
SHEET OF

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DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #2; STAKING DATA

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CLARK COUNTY
WASHINGTON

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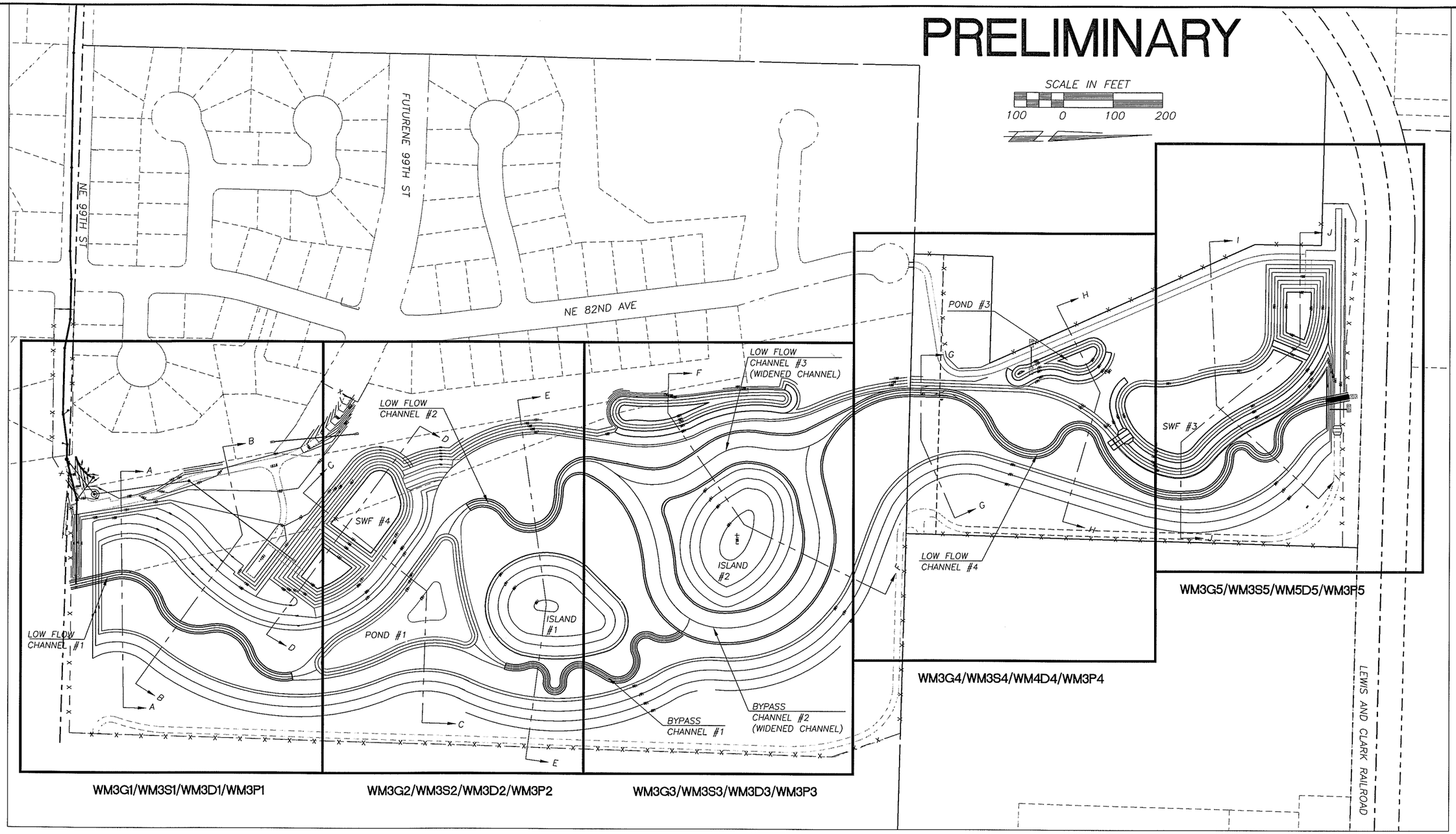
PRELIMINARY



NOTES:

1. SEE WM3–"G", "S", AND "P" DWGS FOR GRADING, STAKING, AND PLANTING PLANS. SEE WM3–"D" DWGS FOR STAKING DATA POINT INFORMATION.

2. SEE DWG DWM1 FOR TYPICAL CROSS SECTIONS AND DETAILS.

3. SEE WM3–"X" DWGS FOR CROSS SECTIONS OF WETLAND MITIGATION AREA.

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=100'
VERT.	NA
DATE	11/29/04
DWG:	WM3LY
SHEET	OF

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STATE OF WASHINGTON MILANE WESLEY WILHAM REGISTERED PROFESSIONAL ENGINEER 31148 EXPIRES JANUARY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; SHEET LAYOUT

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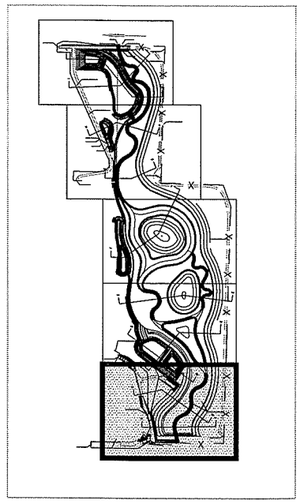
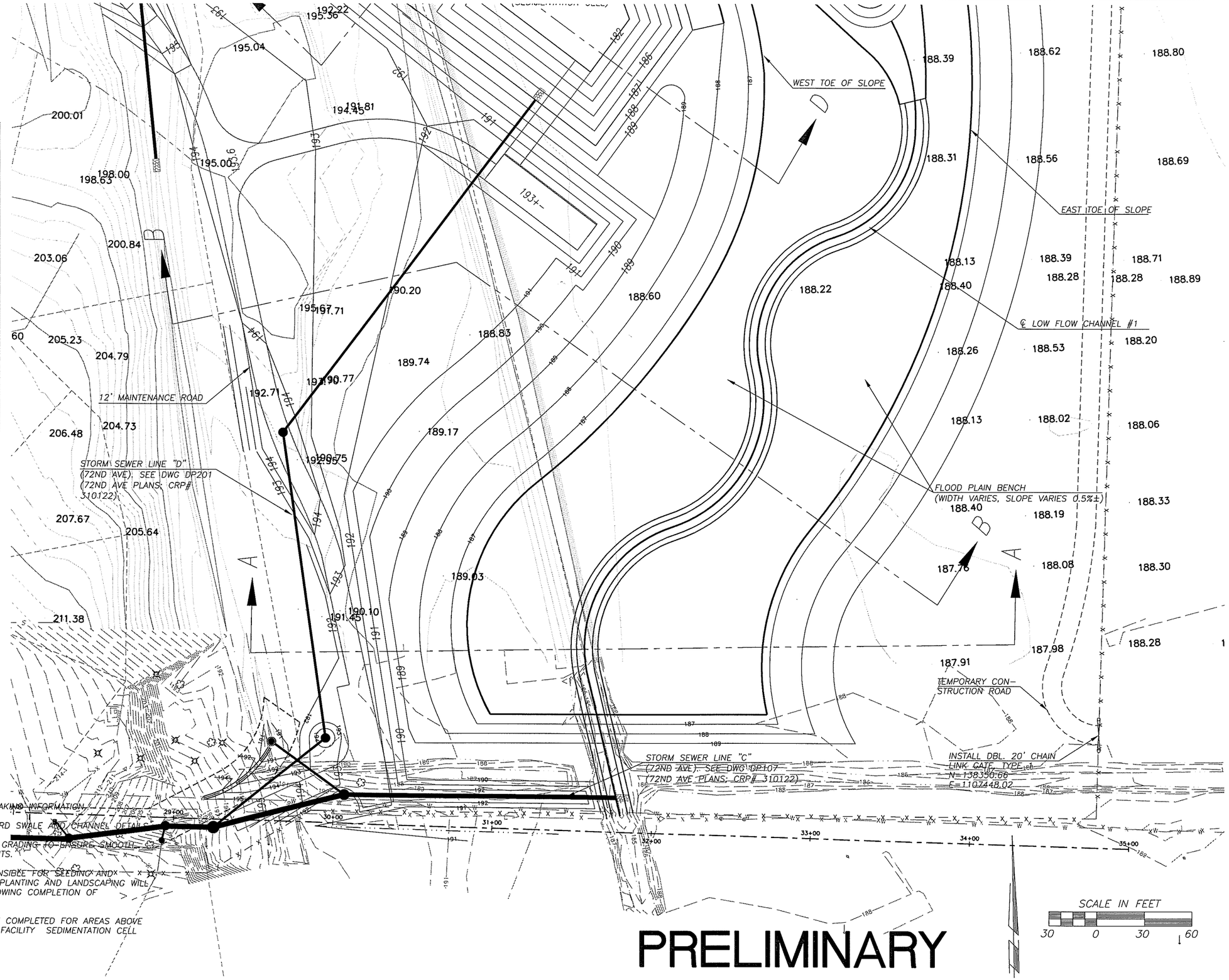
WETLAND MITIGATION 3
VICINITY MAP
NTS





NOTES:

1. SEE DWGS. WM3S1–S5 FOR STAKING INFORMATION.
2. SEE DWG. DDWM1 FOR STANDARD SWALE AND CHANNEL DETAILS.
3. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. ADDITIONAL WETLAND PLANTING AND LANDSCAPING WILL BE PERFORMED BY COUNTY FOLLOWING COMPLETION OF CONSTRUCTION.
5. SEEDING AND MULCHING TO BE COMPLETED FOR AREAS ABOVE ELEVATION 187.0 IN STORMWATER FACILITY SEDIMENTATION CELL AND WETLAND CELL AREAS

PRELIMINARY

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3G1
SHEET	OF

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

STATE OF WASHINGTON JOHN MILNE 21148 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; GRADING (SHT. 1 OF 5)

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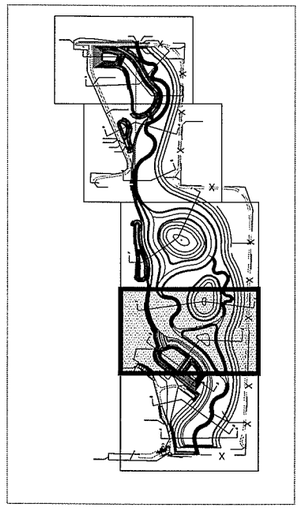
WETLAND MITIGATION 3
VICINITY MAP
NTS



SCALE IN FEET
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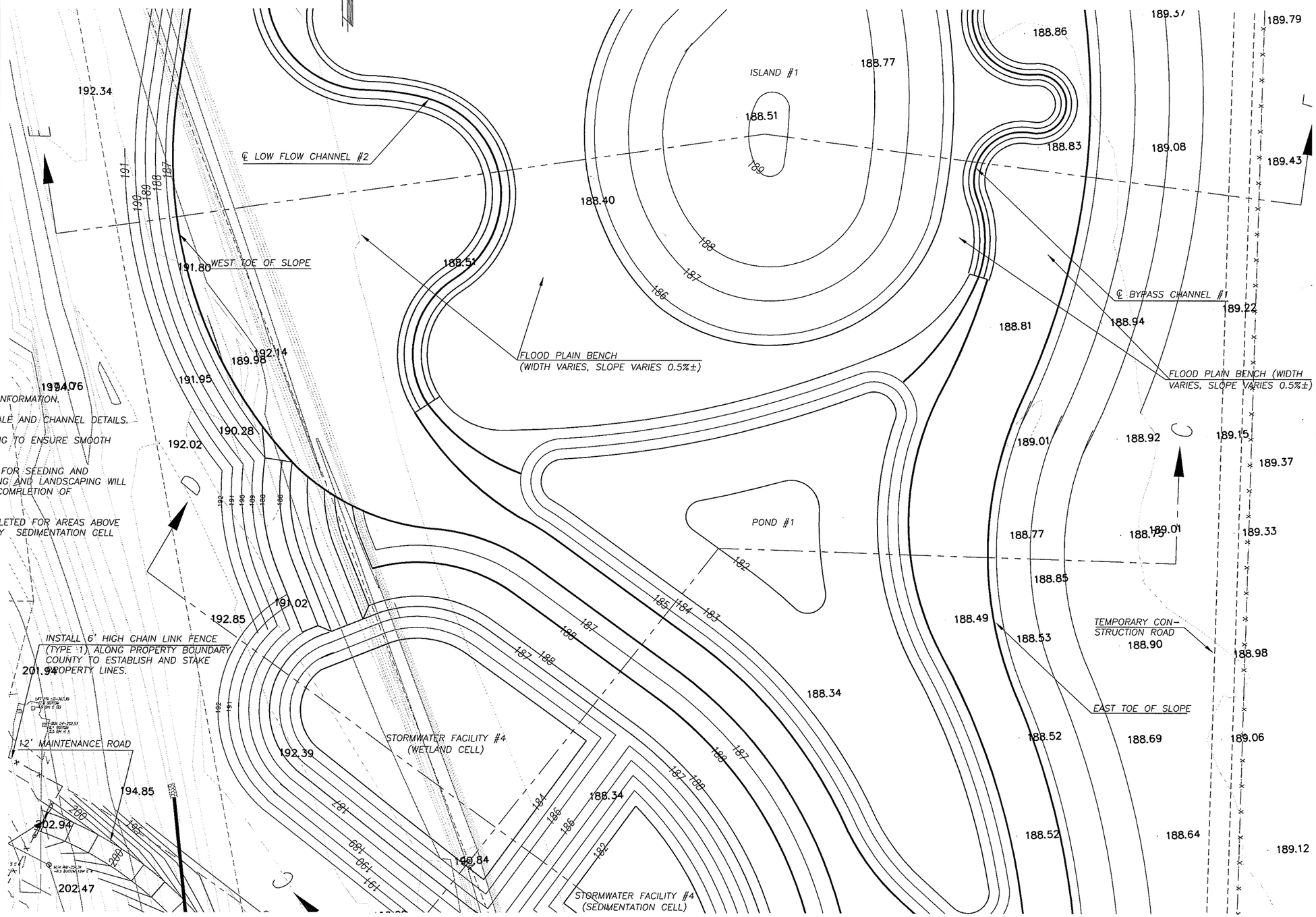

NOTES:

1. SEE DWGS. WM3S1-S5 FOR STAKING INFORMATION.
2. SEE DWG. DDWM1 FOR STANDARD SWALE AND CHANNEL DETAILS.
3. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. ADDITIONAL WETLAND PLANTING AND LANDSCAPING WILL BE PERFORMED BY COUNTY FOLLOWING COMPLETION OF CONSTRUCTION.
5. SEEDING AND MULCHING TO BE COMPLETED FOR AREAS ABOVE ELEVATION 187.0 IN STORMWATER FACILITY SEDIMENTATION CELL AND WETLAND CELL AREAS

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3G2
SHEET	OF

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WETLAND MITIGATION AREA #3; GRADING (SHT. 2 OF 5)

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WASHINGTON

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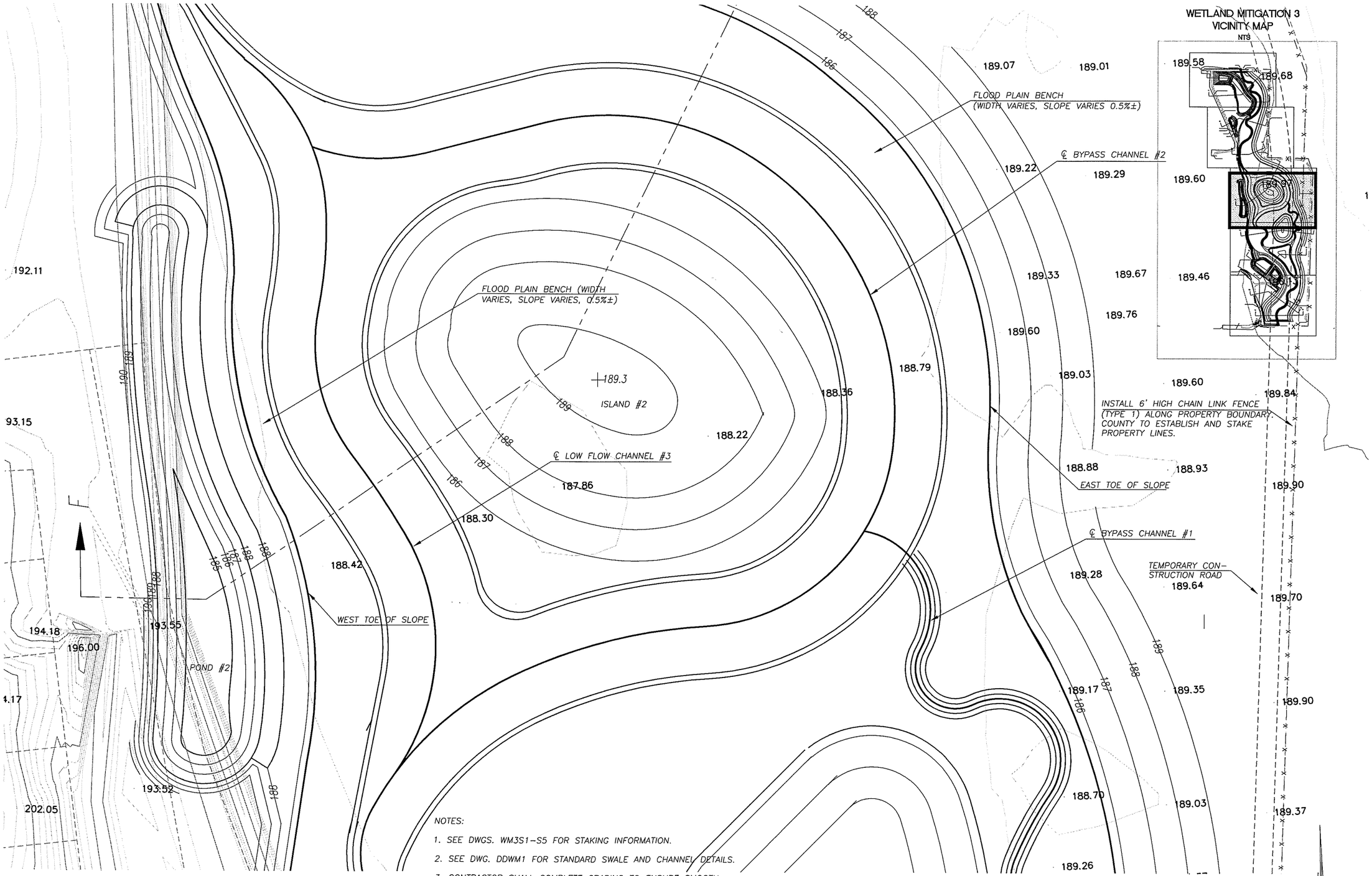

NOTES:

1. SEE DWGS. WM3S1–S5 FOR STAKING INFORMATION.
2. SEE DWG. DDWM1 FOR STANDARD SWALE AND CHANNEL DETAILS.
3. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. ADDITIONAL WETLAND PLANTING AND LANDSCAPING WILL BE PERFORMED BY COUNTY FOLLOWING COMPLETION OF CONSTRUCTION.
5. SEEDING AND MULCHING TO BE COMPLETED FOR AREAS ABOVE ELEVATION 187.0 IN STORMWATER FACILITY SEDIMENTATION CELL AND WETLAND CELL AREAS

PRELIMINARY

SCALE IN FEET
30 0 30 60

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3G3
SHEET	OF

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

STATE OF WASHINGTON
JOHN MILNE
21148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; GRADING (SHT. 3 OF 5)

proud past, promising future
CLARK COUNTY
WASHINGTON

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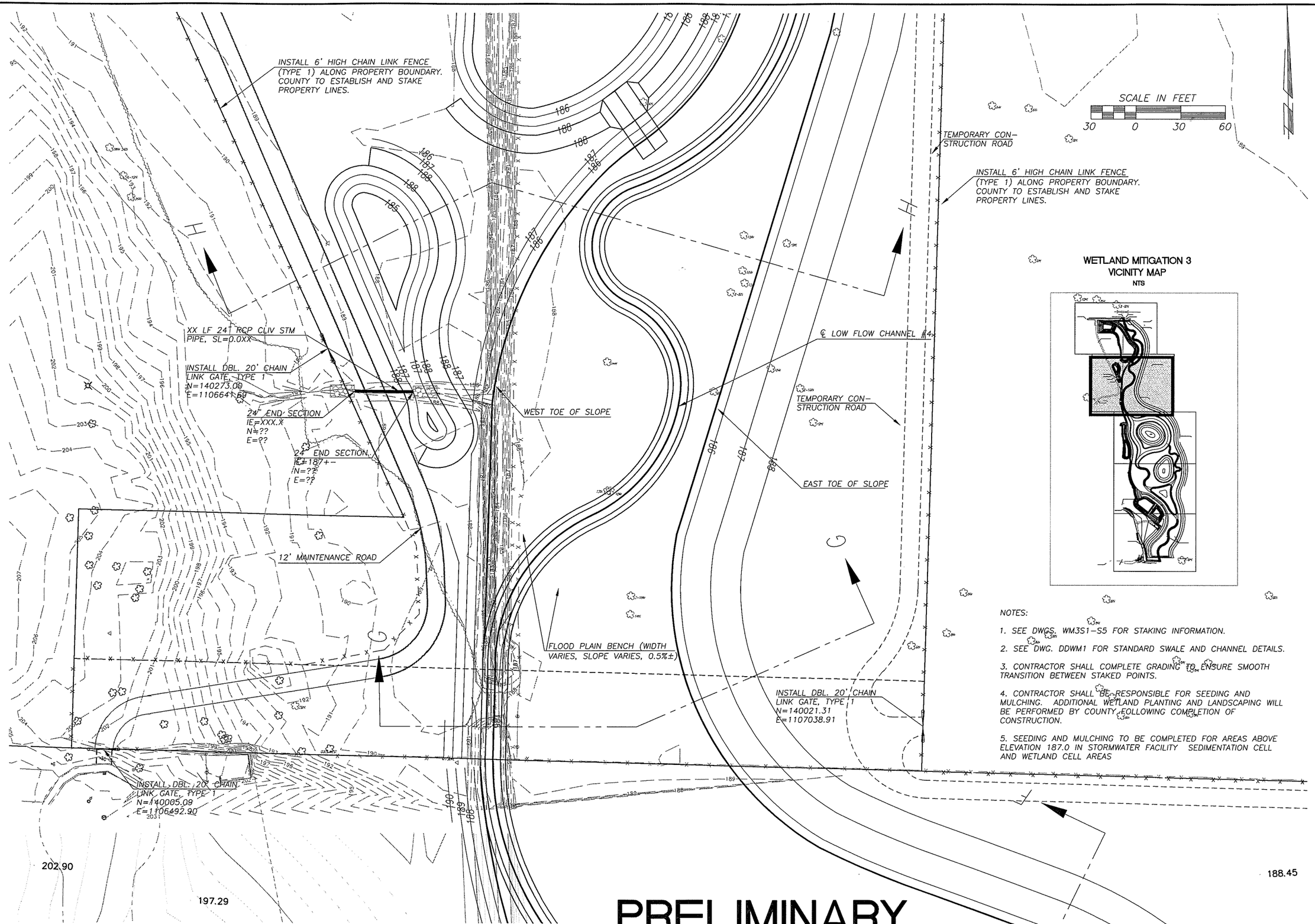

NOTES:

1. SEE DWGS. WM3S1–S5 FOR STAKING INFORMATION.
2. SEE DWG. DDWM1 FOR STANDARD SWALE AND CHANNEL DETAILS.
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5. SEEDING AND MULCHING TO BE COMPLETED FOR AREAS ABOVE ELEVATION 187.0 IN STORMWATER FACILITY SEDIMENTATION CELL AND WETLAND CELL AREAS

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3G4
SHEET	OF

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

STATE OF WASHINGTON JAMES R. MILNE PROFESSIONAL ENGINEER EXPIRES: DEC. 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; GRADING (SHT. 4 OF 5)

proud past, promising future
CLARK COUNTY WASHINGTON

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NOTES:

1. SEE DWGS. WM3S1-S5 FOR STAKING INFORMATION.
2. SEE DWG. DDWM1 FOR STANDARD SWALE AND CHANNEL DETAILS.
3. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.
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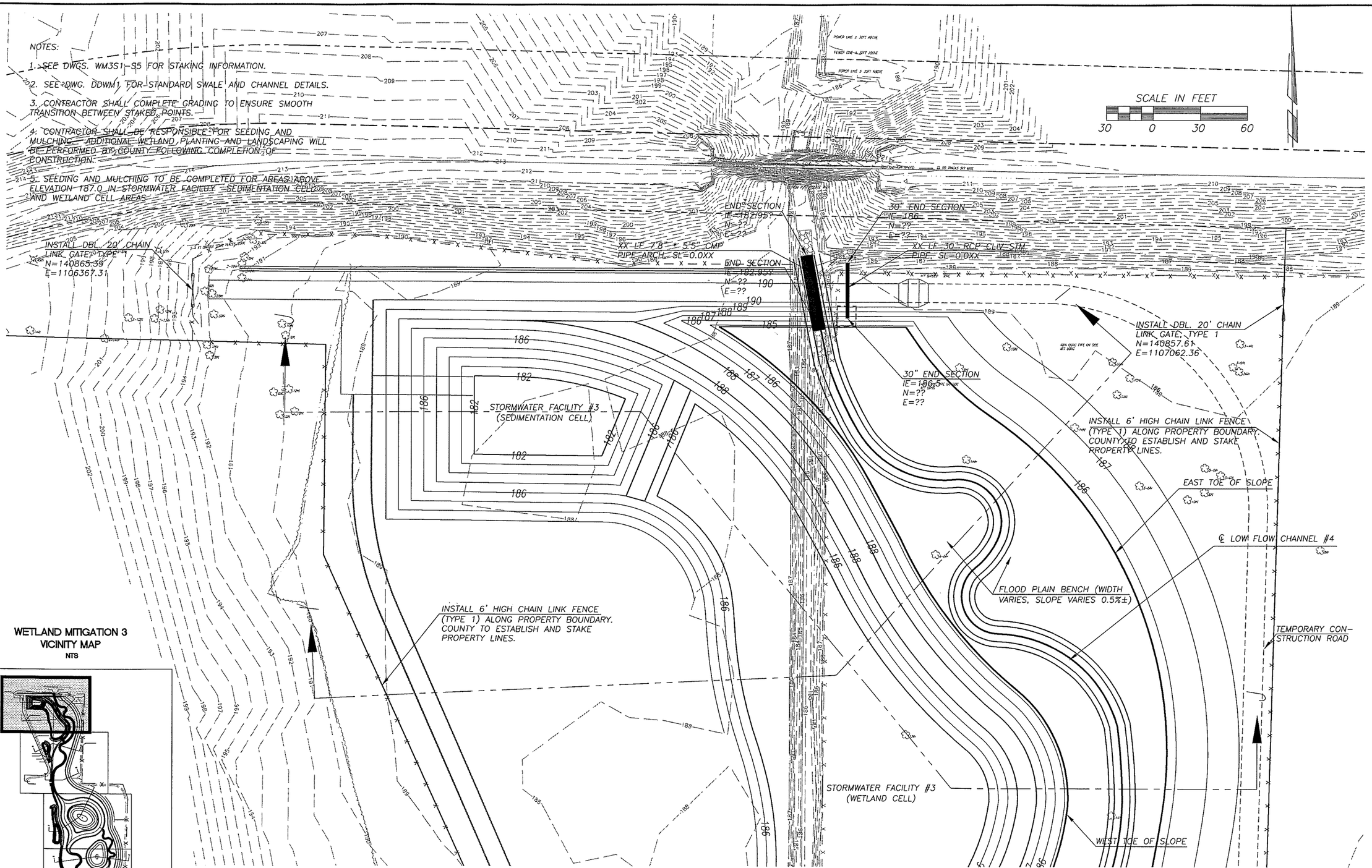
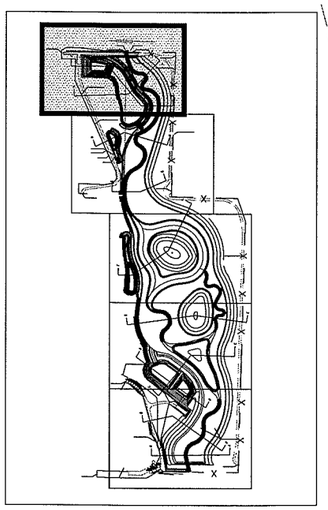


WETLAND MITIGATION 3
VICINITY MAP
NTS



PRELIMINARY

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3G5
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
1-800-553-4344
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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MICHAEL E. MAINES
21148
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; GRADING (SHT. 5 OF 5)

proud past, promising future
CLARK COUNTY
WASHINGTON

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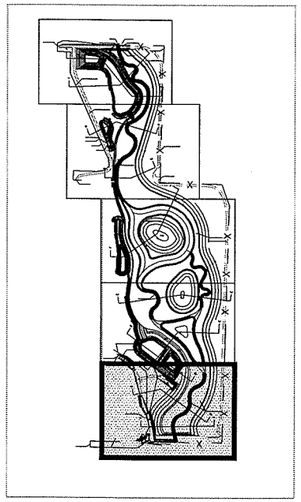
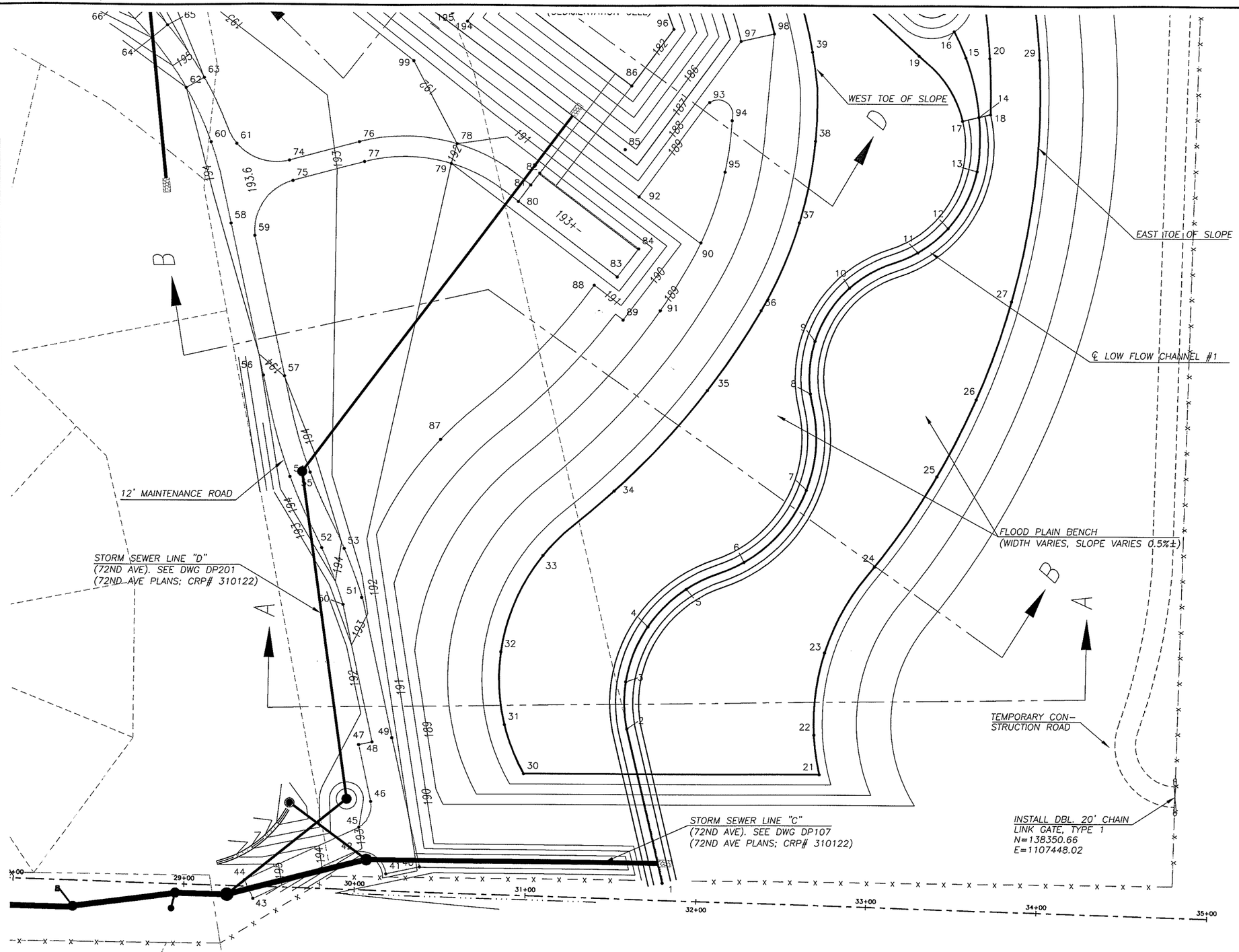
WETLAND MITIGATION 3
VICINITY MAP
NTS





NOTES:

1. SEE DWGS. WM3D1–D5 FOR STAKING DATA.

2. SEE DWG. DWM1 FOR TYPICAL SECTIONS AND DETAILS. SEE DWGS. WM3X1–X3 FOR CROSS SECTIONS.

3. MAIN STAKING POINTS SHOWN; ADDITIONAL STAKING POINTS WILL BE PROVIDED DURING CONSTRUCTION.

3. CONTRACTOR SHALL COMPLETE GRADING TO ENSURE SMOOTH TRANSITION BETWEEN STAKED POINTS.

PRELIMINARY

SCALE IN FEET
30 0 30 60

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3S1
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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LICENSED PROFESSIONAL ENGINEER
MILNE
WASHINGTON
STATE OF
31148
REGISTERED
EXPIRES-JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; STAKING (SHT. 1 OF 5)

proud past, promising future
CLARK COUNTY
WASHINGTON

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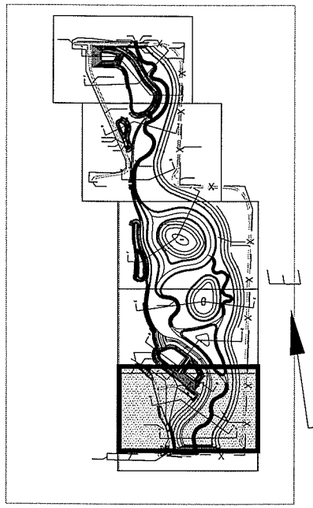
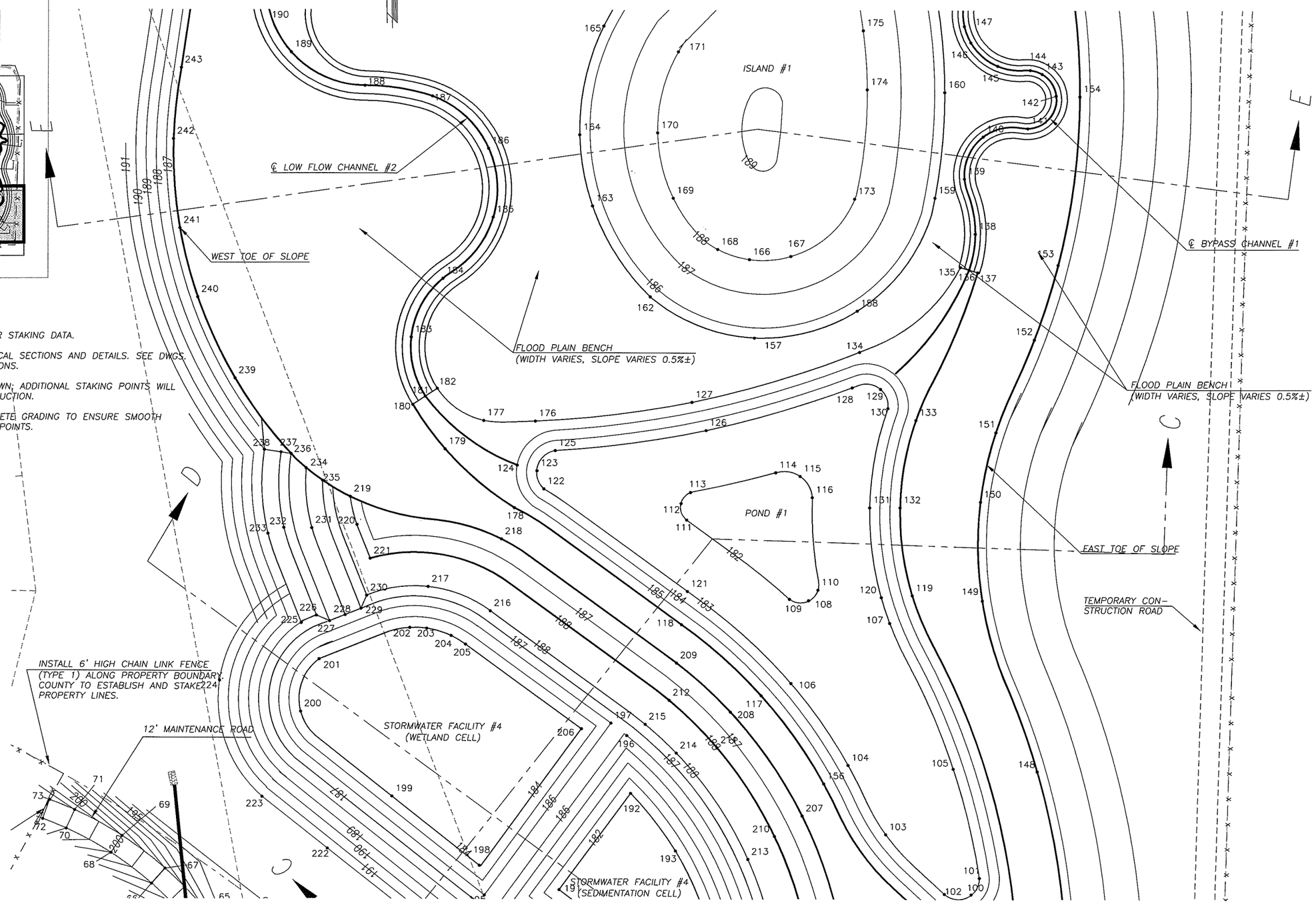
PRELIMINARY

WETLAND MITIGATION 3
VICINITY MAP
NTS



SCALE IN FEET
30 0 30 60



NOTES:

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DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3S2
SHEET	OF

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"It's the Law"
NORTHWEST UTILITIES NOTIFICATION CENTER

MILLIE PRIMATION STATE OF WASHINGTON 19148 REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; STAKING (SHT. 2 OF 5)

proud past, promising future
CLARK COUNTY
WASHINGTON

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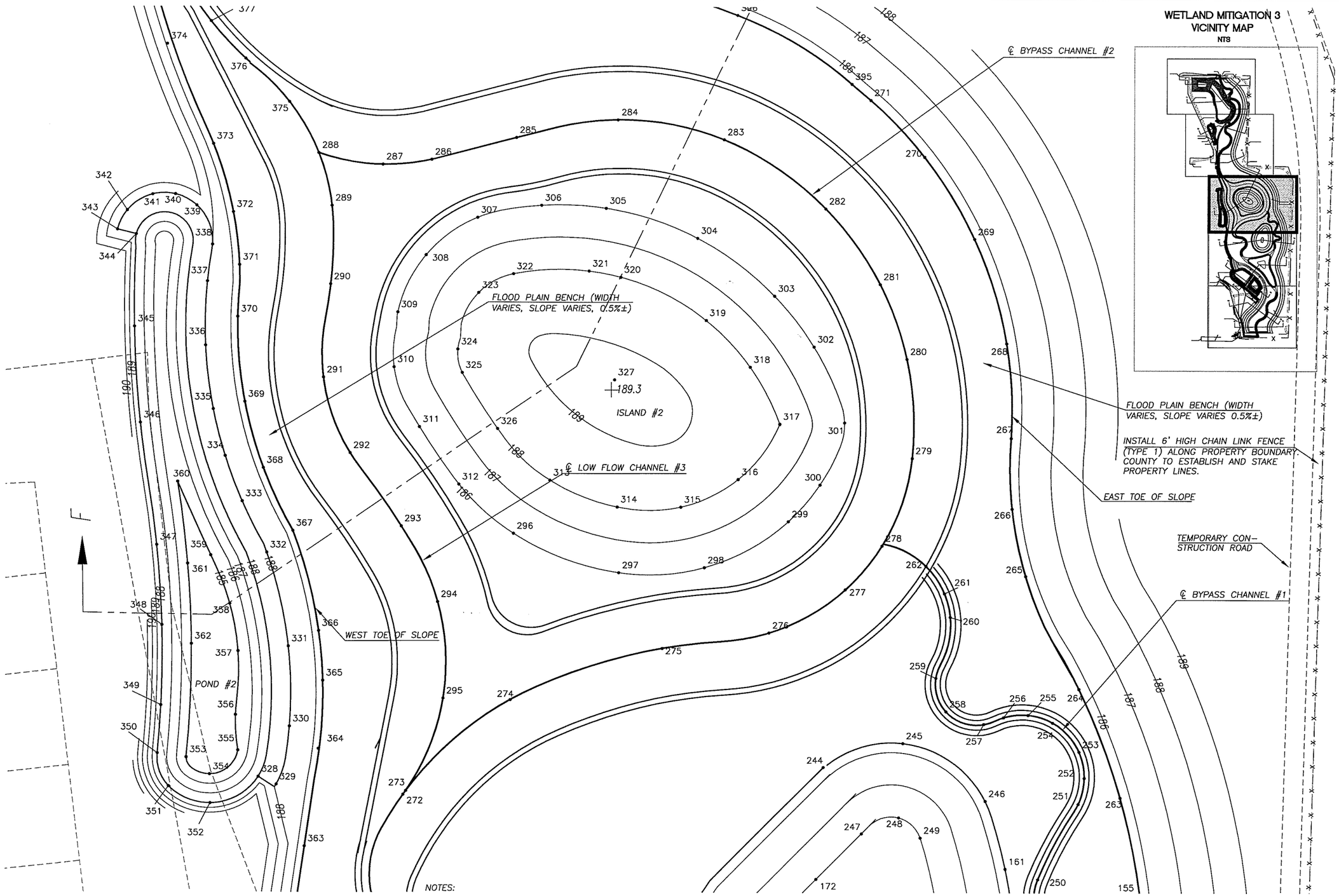

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PRELIMINARY

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3S3
SHEET	OF

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

STATE OF WASHINGTON JULIE M. SCHMIDT 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; STAKING (SHT. 3 OF 5)

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CLARK COUNTY WASHINGTON

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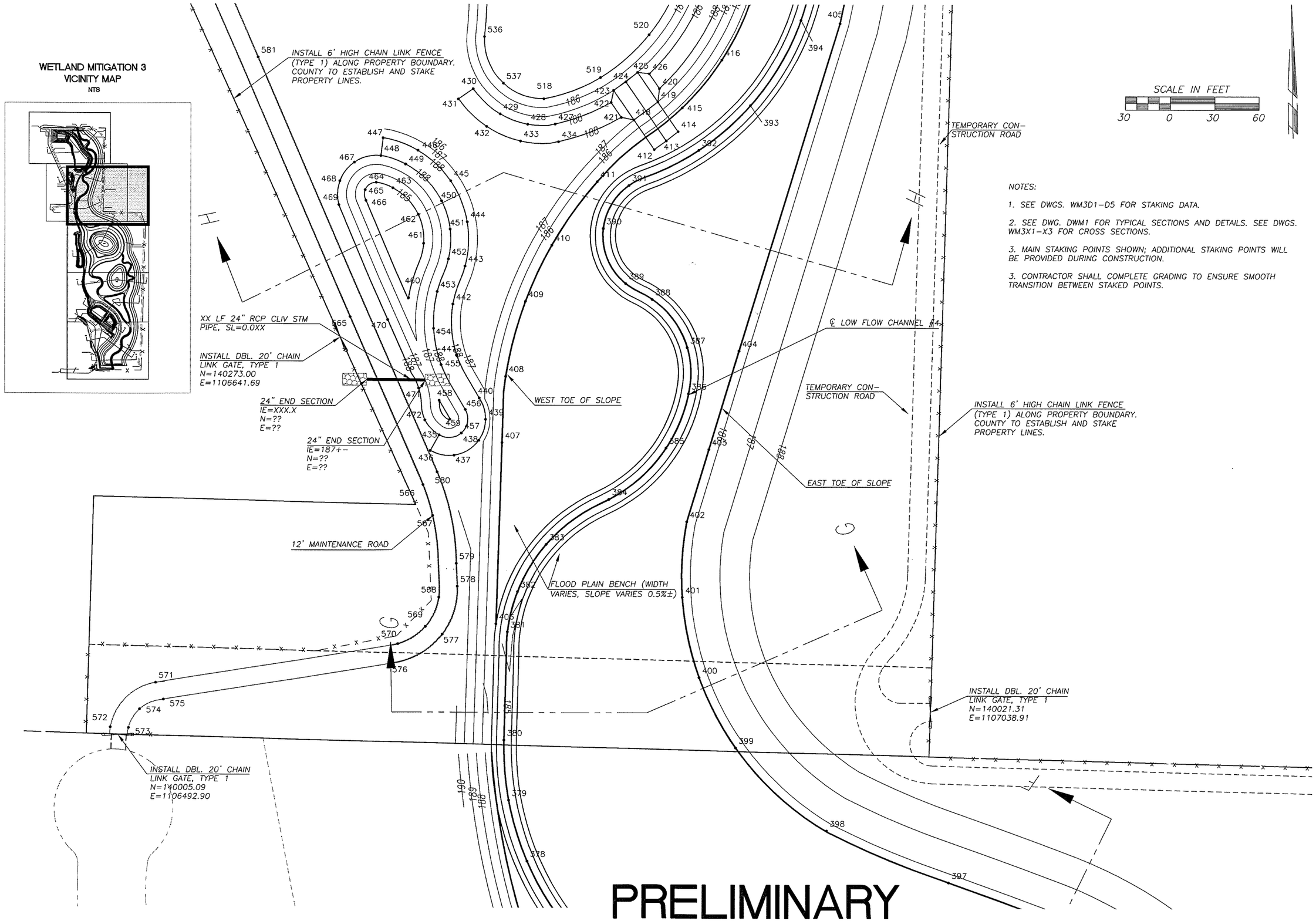

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DESIGNED	JM
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CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3S4
SHEET	OF

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

STATE OF WASHINGTON JOHN MILNE 18116 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 27, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; STAKING (SHT. 4 OF 5)

proud past, promising future
CLARK COUNTY WASHINGTON

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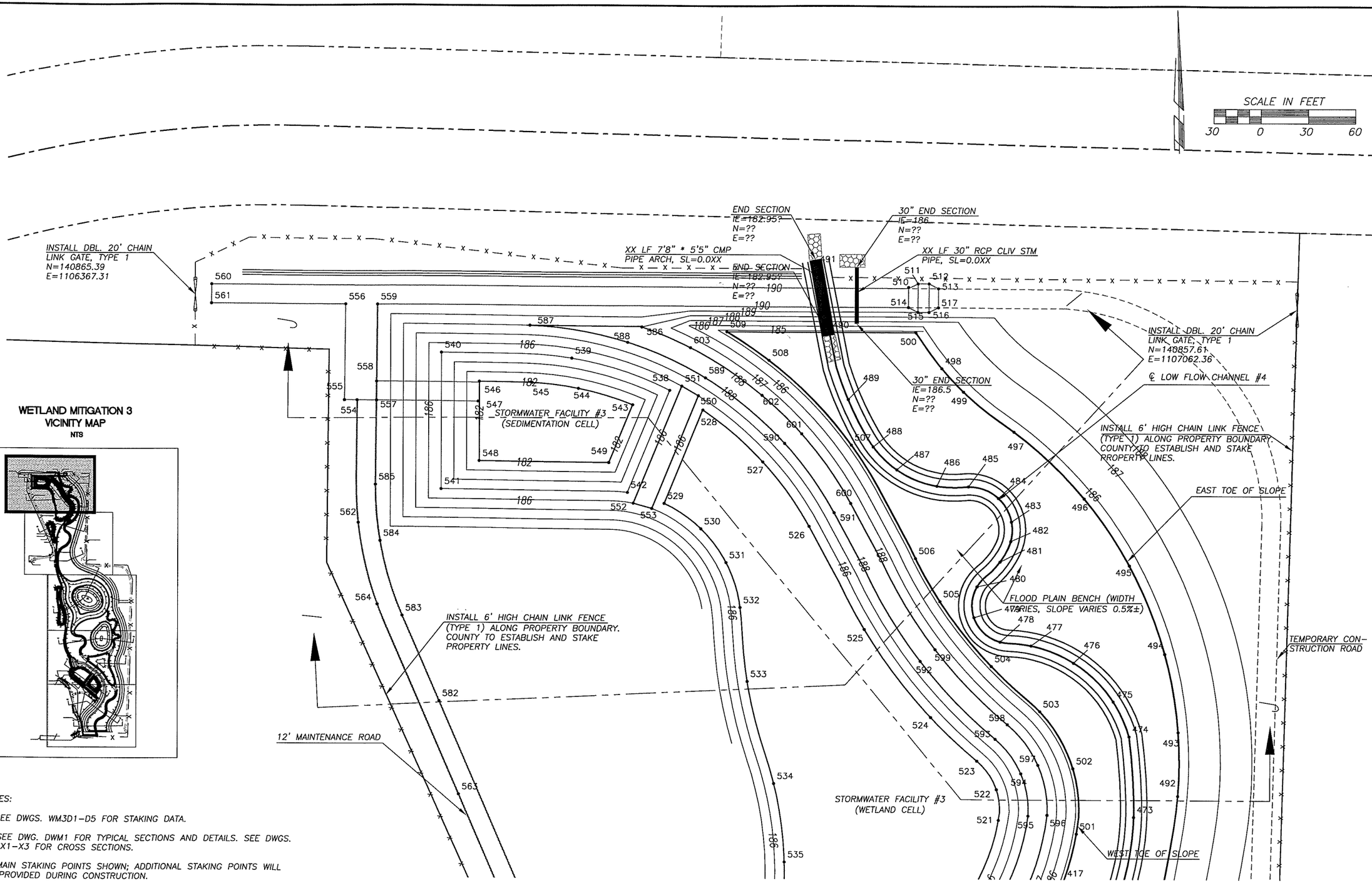
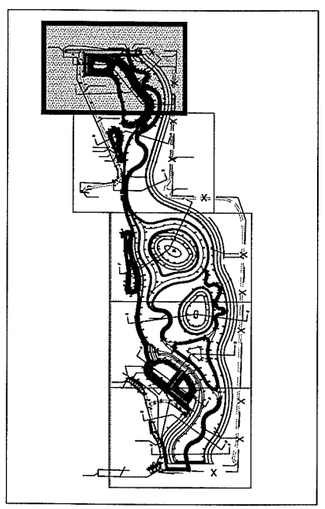


WETLAND MITIGATION 3
VICINITY MAP
NTS



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PRELIMINARY

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3S5
SHEET	OF

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

STATE OF WASHINGTON
MICHAEL WILLIAM MILNE
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; STAKING (SHT. 5 OF 5)

proud past, promising future
CLARK COUNTY
WASHINGTON

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WETLAND MITIGATION AREA #3
SHEET WM3D1

LOW FLOW CHANNEL #1 CENTERLINE

POINT	NORTHING	EASTING	ELEVATION
1	138299.14	1107147.37	184.65
2	138389.51	1107126.42	184.61
3	138417.25	1107125.72	184.59
4	138449.65	1107138.50	184.58
5	138471.74	1107160.85	184.56
6	138487.53	1107194.71	184.54
7	138529.83	1107231.45	184.52
8	138586.35	1107233.64	184.49
9	138617.27	1107236.22	184.47
10	138648.54	1107256.35	184.45
11	138669.46	1107296.12	184.43
12	138683.69	1107313.79	184.42
13	138716.93	1107330.72	184.40
14	138748.67	1107331.71	184.38

EAST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
21	138362.93	1107239.67	186.86
22	138386.17	1107236.46	186.84
23	138434.54	1107242.55	186.79
24	138485.05	1107271.39	186.74
25	138538.08	1107307.72	186.68
26	138583.34	1107330.70	186.63
27	138640.95	1107351.27	186.51
29	138782.31	1107367.09	186.23

WEST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
30	138362.93	1107065.98	186.45
31	138391.81	1107054.64	186.45
32	138434.61	1107052.46	186.45
33	138491.17	1107076.95	186.46
34	138529.10	1107118.60	186.45
35	138588.24	1107172.85	186.45
36	138635.23	1107204.37	186.40
37	138686.62	1107226.72	186.35
38	138734.25	1107236.08	186.31
39	138786.44	1107234.08	186.26

SWF #4 GRADING

POINT	NORTHING	EASTING	ELEVATION
85	138729.18	1107124.34	186.57
86	138766.46	1107127.99	182.00
90	138674.85	1107168.79	189.00
92	138701.63	1107132.53	189.00
93	138756.89	1107173.63	189.00
94	138746.26	1107186.82	189.00
95	138716.13	1107182.81	189.00
96	138799.80	1107152.43	182.00
97	138792.76	1107191.91	188.00
98	138797.02	1107211.46	188.00
99	138780.85	1107000.48	192.00
194	138804.15	1107031.62	186.00
195	138809.07	1107022.83	186.00

MAINTENANCE ROAD

POINT	NORTHING	EASTING	ELEVATION
40	138308.10	1107005.33	191.90
41	138303.90	1106985.78	192.71
42	138316.61	1106968.33	193.00
43	138289.14	1106907.59	196.00
44	138300.04	1106902.57	196.00
45	138331.10	1106969.75	193.00
46	138346.32	1106976.65	193.01
47	138379.64	1106969.48	193.03
48	138381.33	1106977.30	192.87
49	138383.85	1106989.01	192.63
50	138462.02	1106959.94	193.63
51	138466.14	1106970.96	193.25
52	138495.20	1106947.23	194.00
53	138494.78	1106960.54	193.91
54	138536.80	1106928.38	194.00
55	138539.41	1106940.22	194.00
56	138596.32	1106912.62	194.00
57	138595.93	1106924.97	194.00
58	138685.52	1106893.53	194.00
59	138678.22	1106907.37	193.45
60	138732.98	1106881.75	194.00
61	138732.04	1106896.72	193.59
63	138770.69	1106877.68	194.00
64	138794.03	1106846.99	196.00
65	138801.71	1106856.21	196.00
74	138722.24	1106927.46	193.26
75	138710.37	1106929.58	193.18
76	138733.16	1106968.75	192.79
77	138721.56	1106971.82	192.75
78	138732.32	1107025.90	192.00
79	138720.80	1107022.52	192.00
80	138698.68	1107061.77	193.00
81	138708.26	1107069.00	192.69
82	138715.18	1107074.23	192.47
83	138654.76	1107119.93	193.00
84	138671.26	1107132.39	192.47

POND #1 GRADING

POINT	NORTHING	EASTING	ELEVATION
17	138746.39	1107322.14	186.08
18	138750.29	1107338.48	186.08
19	138784.49	1107296.39	186.06
20	138783.21	1107337.94	186.06

GENERAL GRADING

POINT	NORTHING	EASTING	ELEVATION
87	138559.10	1107016.85	191.00
88	138649.84	1107106.54	191.00
89	138629.55	1107123.45	190.00
91	138635.10	1107145.11	189.00

DESIGNED MME/JM
DRAWN KMB
CRP 301422
HOR. NA
VERT. NA
DATE 11/29/04
DWG: WM3D1
SHEET OF

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

STATE OF WASHINGTON JOHN MILNE 31148 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; STAKING DATA (1 OF 5)

proud past, promising future
CLARK COUNTY WASHINGTON

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WETLAND MITIGATION AREA #3
SHEET WM3D2

FLOOD PLAIN BENCH GRADING

LOW FLOW CHANNEL #2 CENTERLINE

POINT	NORTHING	EASTING	ELEVATION
181	139104.66	1106987.37	184.16
183	139139.52	1106978.99	184.14
184	139174.44	1106997.69	184.13
185	139210.74	1107027.36	184.11
186	139251.47	1107024.55	184.09
187	139282.27	1106991.31	184.07
188	139288.28	1106951.57	184.05
189	139307.95	1106907.83	184.03
190	139335	1106894.18	184.01

BYPASS CHANNEL #1 CENTERLINE

POINT	NORTHING	EASTING	ELEVATION
136	139179.86	1107309.21	184.11
138	139201.09	1107312.89	184.1
139	139233.76	1107306.35	184.08
140	139258.73	1107317.53	184.07
141	139263.56	1107343.73	184.06
142	139282.76	1107360.36	184.04
143	139295.58	1107352.12	184.04
144	139297.87	1107345.12	184.03
145	139300.35	1107325.99	184.02
146	139314.12	1107309.98	184.01
147	139323.7	1107306.11	184.01

POND #1 GRADING

POINT	NORTHING	EASTING	ELEVATION
100	138809.71	1107311.18	183.00
101	138819.66	1107316.06	183.00
102	138810.01	1107295.27	183.00
103	138845.37	1107260.48	183.00
104	138886.36	1107238.15	183.00
105	138884.42	1107300.44	183.00
106	138934.81	1107204.23	183.00
107	138970.49	1107262.51	183.00
108	138983.83	1107214.48	182.00
109	138984.65	1107203.26	182.00
110	138990.12	1107220.03	182.00
111	139031.77	1107142.11	182.00
112	139041.50	1107138.84	182.00
113	139048.04	1107144.38	182.00
114	139059.76	1107195.02	182.00
115	139057.57	1107209.35	182.00
116	139044.99	1107216.55	182.00
117	138927.57	1107186.63	185.98
118	138969.65	1107139.17	185.95
119	138986.98	1107275.86	185.93
120	138985.80	1107257.50	183.00
121	138989.37	1107142.64	183.00
122	139049.92	1107057.81	183.00
123	139060.62	1107053.71	183.00
124	139064.04	1107041.95	185.00
125	139072.58	1107064.48	183.00
126	139084.70	1107153.57	183.00
127	139101.32	1107145.10	185.84
128	139109.91	1107239.88	183.00
129	139109.08	1107256.72	183.00
130	139097.80	1107261.13	183.00
131	139039.02	1107250.47	183.00
132	139039.10	1107268.48	185.90
133	139090.90	1107277.79	185.87
134	139130.88	1107244.22	185.82
135	139181.36	1107304.00	185.81
137	139178.23	1107314.36	185.81
156	138875.36	1107223.73	186.00
176	139089.99	1107052.68	185.85
177	139090.40	1107021.97	185.85
178	139038.81	1107040.35	185.90
179	139073.58	1106999.12	185.87
180	139099.76	1106979.96	185.86
182	139109.29	1106994.37	185.86

SWF #4 GRADING

POINT	NORTHING	EASTING	ELEVATION
191	138812.27	1107067.34	182.00
192	138869.61	1107109.38	182.00
193	138835.50	1107135.87	182.00
196	138903.82	1107107.07	186.00
197	138911.15	1107097.68	186.00
198	138826.75	1107019.84	184.00
199	138867.60	1106968.27	184.00
200	138917.71	1106914.18	184.00
201	138948.79	1106925.14	184.00
202	138967.55	1106978.59	184.00
203	138967.17	1106988.56	184.00
204	138962.93	1107002.89	184.00
205	138957.82	1107011.47	184.00
206	138907.80	1107080.34	184.00
210	138844.17	1107194.74	188.00
211	138896.79	1107160.43	188.00
212	138924.83	1107131.97	188.00
213	138830.56	1107179.00	188.00
214	138893.62	1107136.26	188.00
215	138910.55	1107117.89	188.00
216	138977.61	1107026.14	188.00
217	138991.89	1106989.29	188.00
220	139028.48	1106947.33	187.00
221	139008.44	1106955.15	188.00
222	138836.51	1106930.21	192.00
223	138867.34	1106891.29	192.00
224	138936.22	1106865.99	192.00
225	138970.23	1106914.45	188.00
226	138974.62	1106923.42	188.00
227	138971.28	1106931.21	187.00
228	138974.99	1106940.50	187.00
229	138978.69	1106949.79	187.00
230	138986.48	1106953.14	188.00
231	139026.51	1106920.54	186.54
232	139026.71	1106903.96	188.00
233	139023.30	1106894.50	188.00
237	139071.39	1106902.18	188.00
238	139072.93	1106892.30	188.00

MAINTENANCE ROAD

POINT	NORTHING	EASTING	ELEVATION
66	138815.56	1106826.11	198.00
67	138824.54	1106834.07	198.00
68	138833.71	1106802.22	200.00
69	138843.79	1106808.74	200.00
70	138848.07	1106775.88	202.00
71	138859.01	1106780.81	202.00
72	138853.72	1106761.97	203.00
73	138865.00	1106766.07	203.00

ISLAND #1 GRADING

POINT	NORTHING	EASTING	ELEVATION
157.00	139139.36	1107182.24	185.96
158.00	139155.29	1107242.84	185.92
159.00	139222.42	1107288.78	185.87
160.00	139284.80	1107294.51	185.84
162.00	139163.55	1107120.35	185.99
163.00	139217.37	1107086.11	186.03
164.00	139259.44	1107078.53	186.05
165.00	139323.51	1107092.63	186.03
166.00	139185.79	1107179.22	188.00
167.00	139187.57	1107203.58	187.99
168.00	139191.87	1107160.27	188.00
169.00	139222.14	1107133.86	188.00
170.00	139260.71	1107124.51	188.00
171.00	139308.56	1107136.75	188.00
173.00	139221.67	1107241.06	188.00
174.00	139286.25	1107248.45	188.00
175.00	139321.00	1107246.01	188.00

WEST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
148	138882.88	1107350.19	186.24
149	138983.94	1107317.53	186.25
150	139042.59	1107316.28	186.26
151	139083.75	1107325.33	186.26
152	139138.44	1107347.9	186.12
153	139182.66	1107361.83	186.01
154	139282.32	1107374.51	185.78

EAST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
207	138856.26	1107211.09	186.2
208	138917.89	1107168.37	186.13
209	138946.96	1107136.29	186.09
218	139020.29	1107032.68	186.09
219	139045.09	1106943.33	186.21
234	139062.01	1106917.16	186.24
235	139054.57	1106926.96	186.23
236	139070.51	1106908.12	186.24
239	139115.16	1106874.84	186.83
240	139163.12	1106852.67	186.96
241	139204.07	1106842.1	186.96
242	139256.77	1106838.27	186.95
243	139298.82	1106842.81	186

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EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; STAKING DATA (2 OF 5)

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WETLAND MITIGATION AREA #3
SHEET WM3D3

LOW FLOW CHANNEL #3 CENTERLINE

POINT	NORTHING	EASTING	ELEVATION
272	139396.3	1106913.79	183.98
273	139398.65	1106915.48	183.98
288	139795.14	1106861	183.73
289	139762.53	1106869.21	183.74
290	139713.84	1106868.35	183.76
291	139655.85	1106864.02	183.81
292	139608.85	1106880.54	183.84
293	139563.3	1106912.36	183.87
294	139516.25	1106934.95	183.9
295	139456.11	1106938.46	183.93
375	139826.7	1106842.7	183.72
376	139853.42	1106815.27	183.69
377	139876.73	1106793.86	183.67

EAST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
155	139333.95	1107371.38	185.82
263	139394.77	1107359.07	185.86
264	139462.38	1107333.28	185.91
265	139532.66	1107299.97	185.82
266	139574.43	1107291.42	185.73
267	139618.26	1107290.84	185.71
268	139677.17	1107287.95	185.71
269	139741.95	1107268	185.71
270	139792.61	1107236.97	185.71
271	139827.8	1107203.37	185.71
395	139837.85	1107191.6	185.71
396	139880.68	1107120.61	185.71

WEST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
363	139364.30	1106852.47	185.94
364	139424.95	1106861.04	186.00
365	139467.36	1106863.79	185.86
366	139498.35	1106861.21	185.83
367	139560.62	1106845.01	185.73
368	139599.47	1106826.52	185.66
369	139640.47	1106814.98	185.64
370	139693.48	1106810.49	185.61
371	139725.73	1106811.60	185.59
372	139758.43	1106807.75	185.57
373	139800.53	1106795.44	185.55
374	139862.54	1106766.82	186.00

BYPASS CHANNEL #1 CENTERLINE

POINT	NORTHING	EASTING	ELEVATION
250	139344.04	1107307.74	184.00
251	139390.93	1107332.89	183.97
252	139407.07	1107336.69	183.96
253	139423.32	1107333.40	183.96
254	139441.42	1107316.81	183.94
255	139446.17	1107301.64	183.94
256	139444.66	1107286.47	183.93
257	139440.38	1107274.26	183.92
258	139448.15	1107250.90	183.91
259	139469.02	1107244.53	183.90
260	139507.03	1107253.43	183.88
261	139521.69	1107249.81	183.87
262	139538.74	1107238.24	183.86

BYPASS CHANNEL #2 CENTERLINE

POINT	NORTHING	EASTING	ELEVATION
274	139455.32	1106980.27	183.93
275	139487.41	1107074.27	183.90
276	139497.27	1107140.61	183.88
277	139524.27	1107187.92	183.87
278	139551.32	1107210.79	183.86
279	139605.60	1107229.56	183.85
280	139667.28	1107226.14	183.83
281	139713.86	1107209.38	183.82
282	139760.76	1107175.41	183.80
283	139803.32	1107112.44	183.78
284	139815.60	1107046.45	183.76
285	139804.48	1106983.69	183.75
286	139790.82	1106930.88	183.73
287	139787.90	1106900.70	183.73

POND #2 GRADING

POINT	NORTHING	EASTING	ELEVATION
328	139407.33	1106823.68	188.00
329	139402.61	1106834.85	188.00
330	139438.78	1106843.04	188.00
331	139488.69	1106842.27	188.00
332	139547.01	1106828.74	188.00
333	139578.71	1106813.38	188.00
334	139606.79	1106802.87	188.00
335	139635.86	1106795.50	188.00
336	139675.54	1106790.73	188.00
337	139715.49	1106791.80	188.00
338	139738.27	1106794.90	188.00
339	139762.47	1106785.21	188.00
340	139769.40	1106772.09	188.00
341	139769.34	1106758.02	188.00
342	139759.61	1106742.38	188.00
343	139747.70	1106736.28	188.00
344	139744.77	1106747.91	188.00
345	139687.34	1106746.84	188.00
346	139627.47	1106750.55	188.00
347	139551.58	1106760.74	188.00
348	139501.70	1106764.05	188.00
349	139451.72	1106763.50	188.00
350	139421.80	1106761.31	188.00
351	139401.29	1106768.26	188.00
352	139390.75	1106793.96	188.00
353	139419.27	1106779.19	185.00
354	139408.75	1106793.55	185.00
355	139423.67	1106811.02	185.00
356	139445.72	1106809.47	185.00
357	139485.50	1106810.98	185.00
358	139515.01	1106805.84	185.00
359	139545.12	1106794.10	185.00
360	139590.74	1106773.63	185.00
361	139539.90	1106779.93	185.00
362	139489.97	1106782.27	185.00

ISLAND #1 GRADING

POINT	NORTHING	EASTING	ELEVATION
161	139350.52	1107287.61	185.85
172	139344.12	1107169.91	188.00
244	139413.62	1107174.36	185.90
245	139428.40	1107224.02	185.87
246	139392.60	1107275.23	185.86
247	139372.35	1107198.25	188.00
248	139382.21	1107221.49	188.00
249	139369.72	1107235.04	188.00

ISLAND #2 GRADING

POINT	NORTHING	EASTING	ELEVATION
296	139558.88	1106982.12	186.00
297	139534.62	1107047.23	186.00
298	139537.73	1107100.47	186.00
299	139566.52	1107152.48	186.00
300	139589.19	1107172.02	186.00
301	139627.77	1107187.31	186.00
302	139675.04	1107168.23	186.00
303	139706.62	1107143.80	186.00
304	139742.37	1107095.95	186.00
305	139760.95	1107039.18	186.00
306	139762.77	1106999.29	186.00
307	139755.05	1106959.55	186.00
308	139731.81	1106927.48	186.00
309	139696.27	1106909.99	186.00
310	139662.14	1106907.70	186.00
311	139624.82	1106923.53	186.00
312	139589.23	1106948.06	186.00
313	139591.97	1107004.62	188.00
314	139575.40	1107046.20	188.00
315	139575.25	1107085.68	188.00
316	139592.50	1107121.38	188.00
317	139626.92	1107147.12	188.00
318	139662.30	1107128.73	188.00
319	139691.31	1107101.38	188.00
320	139718.23	1107048.24	188.00
321	139722.04	1107028.62	188.00
322	139720.19	1106981.91	188.00
323	139708.43	1106960.26	188.00
324	139673.17	1106947.29	188.00
325	139658.63	1106950.03	188.00
326	139623.85	1106972.15	188.00
327	139654.37	1107044.50	189.00

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STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2003

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WETLAND MITIGATION AREA #3
SHEET WM3D4

LOW FLOW CHANNEL #4 CENTERLINE

POINT	NORTHING	EASTING	ELEVATION
378	139920.50	1106767.96	183.64
379	139961.58	1106755.42	183.61
380	140001.97	1106752.20	183.59
381	140074.83	1106754.35	183.55
382	140102.00	1106761.10	183.54
383	140133.90	1106780.33	183.52
384	140164.19	1106822.19	183.49
385	140198.71	1106860.43	183.46
386	140235.19	1106875.44	183.44
387	140266.16	1106874.55	183.42
388	140298.62	1106850.89	183.40
389	140309.26	1106833.21	183.39
390	140346.29	1106818.06	183.37
391	140375.15	1106835.17	183.36
392	140398.79	1106882.14	183.33
393	140428.90	1106916.90	183.31
394	140486.14	1106950.43	183.28

EAST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
397	139906.42	1107051.25	185.77
398	139941.29	1106969.01	186.00
399	139997.14	1106907.73	186.03
400	140044.22	1106883.11	185.84
401	140098.31	1106871.62	185.63
402	140149.19	1106874.51	185.45
403	140197.81	1106889.34	185.26
404	140264.07	1106909.54	185.26
405	140483.82	1106976.57	185.28

WEST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
406	140080.21	1106746.61	185.25
407	140202.13	1106750.33	185.66
408	140246.76	1106752.80	185.55
409	140297.24	1106766.06	185.41
410	140335.09	1106783.75	185.30
411	140377.65	1106813.96	185.17
415	140427.15	1106870.87	185.10
416	140459.49	1106897.55	185.11

POND #3 GRADING

POINT	NORTHING	EASTING	ELEVATION
435	140207.07	1106708.05	188.00
436	140196.60	1106702.18	188.00
437	140193.50	1106717.99	188.00
438	140203.57	1106734.63	188.00
439	140217.62	1106739.21	188.00
440	140231.98	1106734.87	188.00
441	140260.57	1106719.76	188.00
442	140295.11	1106717.04	188.00
443	140320.73	1106725.15	188.00
444	140350.46	1106726.57	188.00
445	140378.02	1106715.33	188.00
446	140398.27	1106693.52	188.00
447	140406.67	1106670.23	188.00
448	140394.75	1106668.79	188.00
449	140389.09	1106685.28	188.00
450	140364.46	1106709.37	188.00
451	140345.41	1106715.12	188.00
452	140325.54	1106713.97	188.00
453	140303.51	1106706.56	188.00
454	140278.72	1106704.16	188.00
455	140254.34	1106709.24	188.00
456	140224.22	1106725.50	188.00
457	140208.37	1106722.89	188.00
458	140230.26	1106708.04	186.00
459	140217.62	1106715.16	186.00
460	140299.27	1106687.32	185.00
461	140335.94	1106697.41	185.00
462	140355.38	1106693.78	185.00
463	140373.19	1106676.83	185.00
464	140376.94	1106665.71	185.00
465	140371.98	1106658.34	185.00
466	140364.92	1106658.84	185.00
467	140390.44	1106651.10	188.00
468	140378.02	1106641.37	188.00
469	140362.01	1106640.72	188.00
470	140284.63	1106673.56	188.00
471	140238.55	1106694.32	188.00
472	140217.09	1106698.51	188.00

SWF #3 GRADING

POINT	NORTHING	EASTING	ELEVATION
412	140399.23	1106852.04	185.06
413	140405.01	1106860.20	185.06
414	140411.22	1106868.05	185.06
418	140418.97	1106838.39	187.00
419	140431.07	1106854.35	187.00
420	140440.08	1106855.43	188.00
421	140420.68	1106829.94	188.00
422	140430.71	1106823.04	188.00
423	140438.78	1106824.77	187.00
424	140444.50	1106832.97	187.00
425	140450.88	1106840.72	187.00
426	140450.00	1106848.61	188.00
427	140416.20	1106785.87	188.00
428	140416.05	1106767.39	188.00
429	140422.90	1106748.70	188.00
430	140439.61	1106730.37	188.00
431	140432.64	1106720.41	188.00
432	140414.33	1106739.60	188.00
433	140404.77	1106762.55	188.00
434	140404.42	1106788.14	188.00
518	140433.12	1106778.21	185.00
519	140447.46	1106816.00	185.00
520	140476.40	1106848.37	185.00
536	140474.81	1106737.89	185.00
537	140443.49	1106750.81	185.00

MAINTENANCE ROAD

MAINTENANCE ROAD

POINT	NORTHING	EASTING	ELEVATION
565	140286.71	1106648.41	189.21
566	140173.70	1106697.34	188.47
567	140153.00	1106703.84	188.55
568	140097.99	1106708.15	188.50
569	140078.17	1106699.16	188.89
570	140066.53	1106680.78	189.54
571	140040.25	1106518.33	0.00
572	140010.18	1106487.72	0.00
573	140009.80	1106500.01	0.00
574	140022.39	1106507.52	200.00
575	140028.95	1106523.63	200.00
576	140053.52	1106676.93	189.51
577	140073.08	1106710.46	0.00
578	140105.35	1106720.45	188.23
579	140120.83	1106719.73	188.23
580	140182.25	1106706.79	188.22
581	140460.67	1106586.04	188.82

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WETLAND MITIGATION AREA #3
SHEET WM3D5

LOW FLOW CHANNEL #4 CENTERLINE

POINT	NORTHING	EASTING	ELEVATION
473	140537.25	1106959.87	183.25
474	140588.02	1106956.83	183.22
475	140609.97	1106946.80	183.21
476	140634.49	1106921.69	183.20
477	140645.33	1106894.79	183.18
478	140647.69	1106875.34	183.17
479	140663.04	1106858.96	183.16
480	140682.46	1106860.76	183.15
481	140698.23	1106875.16	183.14
482	140711.14	1106881.88	183.13
483	140723.38	1106882.27	183.13
484	140738.24	1106873.94	183.12
485	140745.34	1106855.18	183.11
486	140745.66	1106835.31	183.10
487	140755.92	1106809.76	183.09
488	140770.28	1106794.79	183.08
489	140800.19	1106778.93	183.06
490	140842.58	1106766.99	183.04
491	140884.05	1106758.76	185.73

SWF #3 GRADING

POINT	NORTHING	EASTING	ELEVATION
521	140535.14	1106874.60	185.00
522	140554.46	1106873.27	185.00
523	140572.38	1106860.95	185.00
524	140599.71	1106831.77	185.00
525	140655.33	1106789.49	185.00
526	140720.37	1106754.40	185.00
527	140760.81	1106725.20	185.00
528	140793.24	1106687.30	185.00
529	140734.43	1106662.94	185.00
530	140718.54	1106686.19	185.00
531	140697.32	1106702.21	185.00
532	140669.03	-1106711.13	185.00
533	140622.30	1106715.74	185.00
534	140557.99	1106732.58	185.00
535	140508.55	1106739.34	185.00
538	140805.61	1106666.24	185.00
539	140825.87	1106604.75	185.00
540	140829.15	1106522.45	185.00
541	140743.15	1106522.45	185.00
542	140741.25	1106639.80	185.00
543	140796.47	1106643.02	182.00
544	140806.81	1106608.89	182.00
545	140810.46	1106579.86	182.00
546	140810.91	1106546.45	182.00
547	140798.36	1106545.67	182.10
548	140760.91	1106546.45	182.00
549	140760.10	1106628.08	182.00
550	140802.28	1106684.33	186.00
551	140808.37	1106673.86	186.00
552	140734.51	1106643.52	186.00
553	140731.18	1106655.12	186.00
586	140845.63	1106648.58	188.00
587	140846.60	1106578.36	188.00
588	140835.91	1106639.75	188.00
589	140813.58	1106688.85	188.00
590	140772.48	1106738.92	188.00
591	140729.03	1106770.18	188.00
592	140635.15	1106825.10	188.00
593	140586.25	1106872.43	188.00
594	140564.60	1106888.64	188.00
595	140537.95	1106893.22	188.00
596	140538.51	1106905.27	188.00
597	140569.97	1106899.39	187.99
598	140595.49	1106880.08	188.00
599	140642.64	1106834.48	188.00
600	140734.80	1106780.70	188.00
601	140778.58	1106749.58	187.99
602	140802.74	1106724.59	188.00
603	140832.62	1106679.30	187.99

MAINTENANCE ROAD

POINT	NORTHING	EASTING	ELEVATION
510	140871.01	1106816.92	190.00
511	140873.26	1106822.92	0.00
512	140873.24	1106829.92	0.00
513	140870.21	1106835.91	0.00
514	140858.29	1106816.87	190.00
515	140855.26	1106822.86	189.02
516	140855.24	1106829.86	188.96
517	140858.21	1106835.87	189.30
554	140799.12	1106469.49	189.00
555	140799.20	1106461.59	190.40
556	140859.70	1106462.19	190.40
557	140799.00	1106481.67	189.00
558	140811.00	1106481.71	189.53
559	140859.63	1106482.19	190.00
560	140871.98	1106377.60	192.00
561	140859.98	1106377.48	192.00
562	140722.04	1106470.35	188.98
563	140550.55	1106533.98	188.39
564	140670.54	1106482.36	189.13
582	140609.42	1106521.53	188.46
583	140663.42	1106498.11	188.81
584	140710.63	1106484.06	188.75
585	140745.97	1106481.06	188.79

EAST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
492	140550.56	1106987.70	185.27
493	140590.72	1106987.82	185.27
494	140640.17	1106979.28	185.26
495	140695.96	1106956.75	185.25
496	140738.06	1106928.08	185.18
497	140780.01	1106883.68	185.10
498	140819.77	1106838.13	185.03
499	140805.01	1106851.89	185.05
500	140842.37	1106821.63	184.99

WEST TOE OF SLOPE

POINT	NORTHING	EASTING	ELEVATION
417	140497.13	1106916.05	185.12
501	140526.74	1106923.77	185.11
502	140567.90	1106921.46	185.10
503	140603.76	1106900.50	185.10
504	140632.19	1106869.88	185.09
505	140672.99	1106837.42	185.08
506	140700.15	1106821.83	185.07
507	140771.47	1106781.00	185.05
508	140824.91	1106728.90	185.04
509	140842.83	1106702.29	185.04

DESIGNED MME/JM
DRAWN KMB
CRP 301422
HOR. NA
VERT. NA
DATE 11/29/04
DWG: WM3D5
SHEET OF

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

STATE OF WASHINGTON JOHN M. LEE 37148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; STAKING DATA (5 OF 5)

proud past, promising future
CLARK COUNTY WASHINGTON

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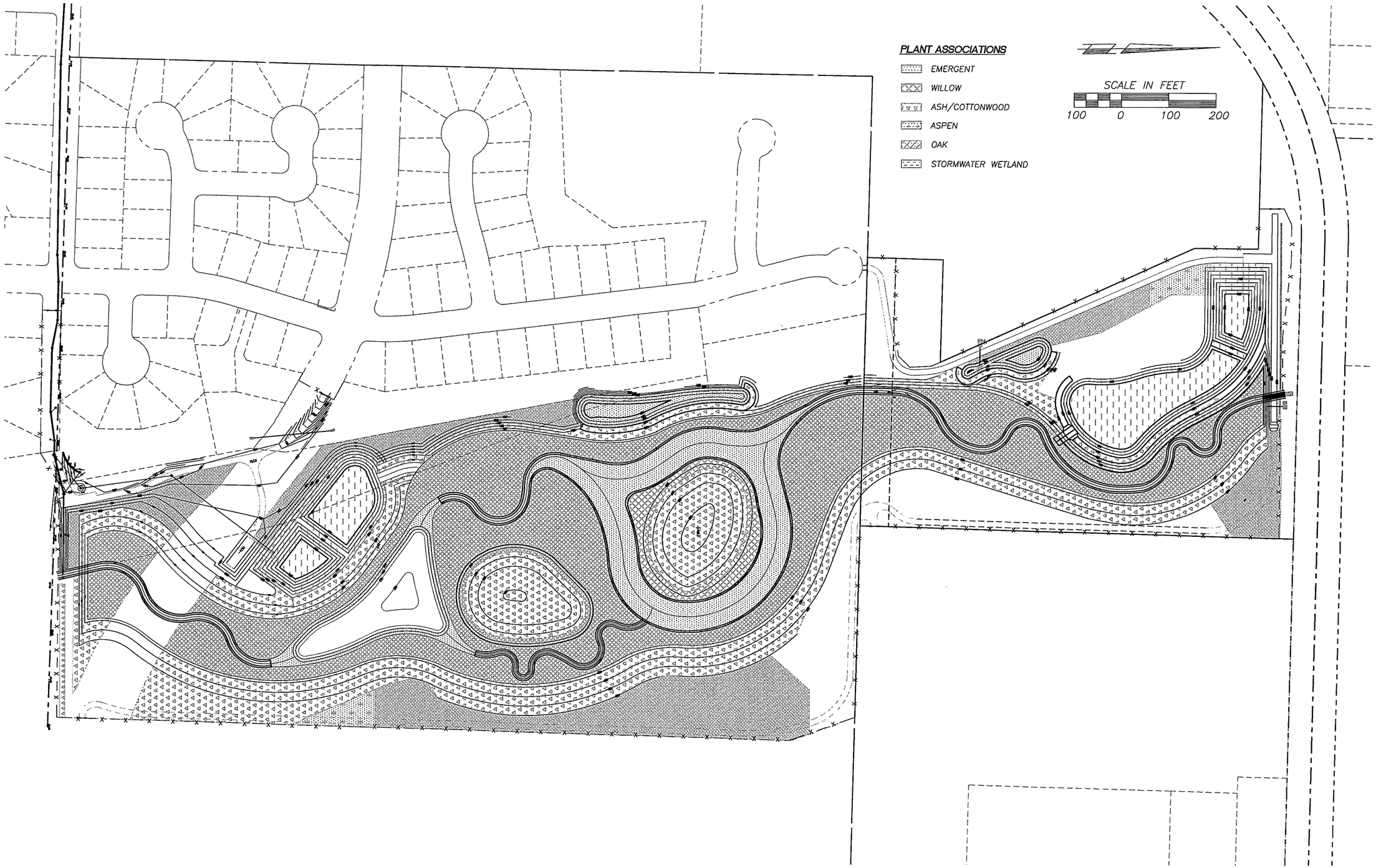

PRELIMINARY

DESIGNED JM
DRAWN RRK
CRP 310122
HOR. 1"=100'
VERT. NA
DATE 11/29/04
DWG: WM3PLY
SHEET OF

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NORTHWEST UTILITIES NOTIFICATION CENTER

JOHN MILNE
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3: PLANTING LAYOUT

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WASHINGTON

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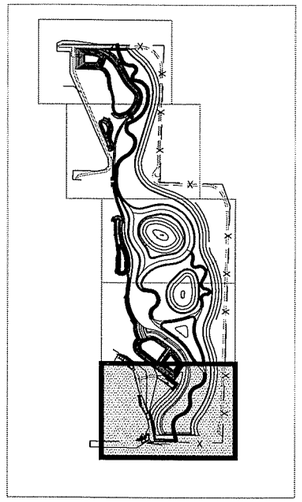
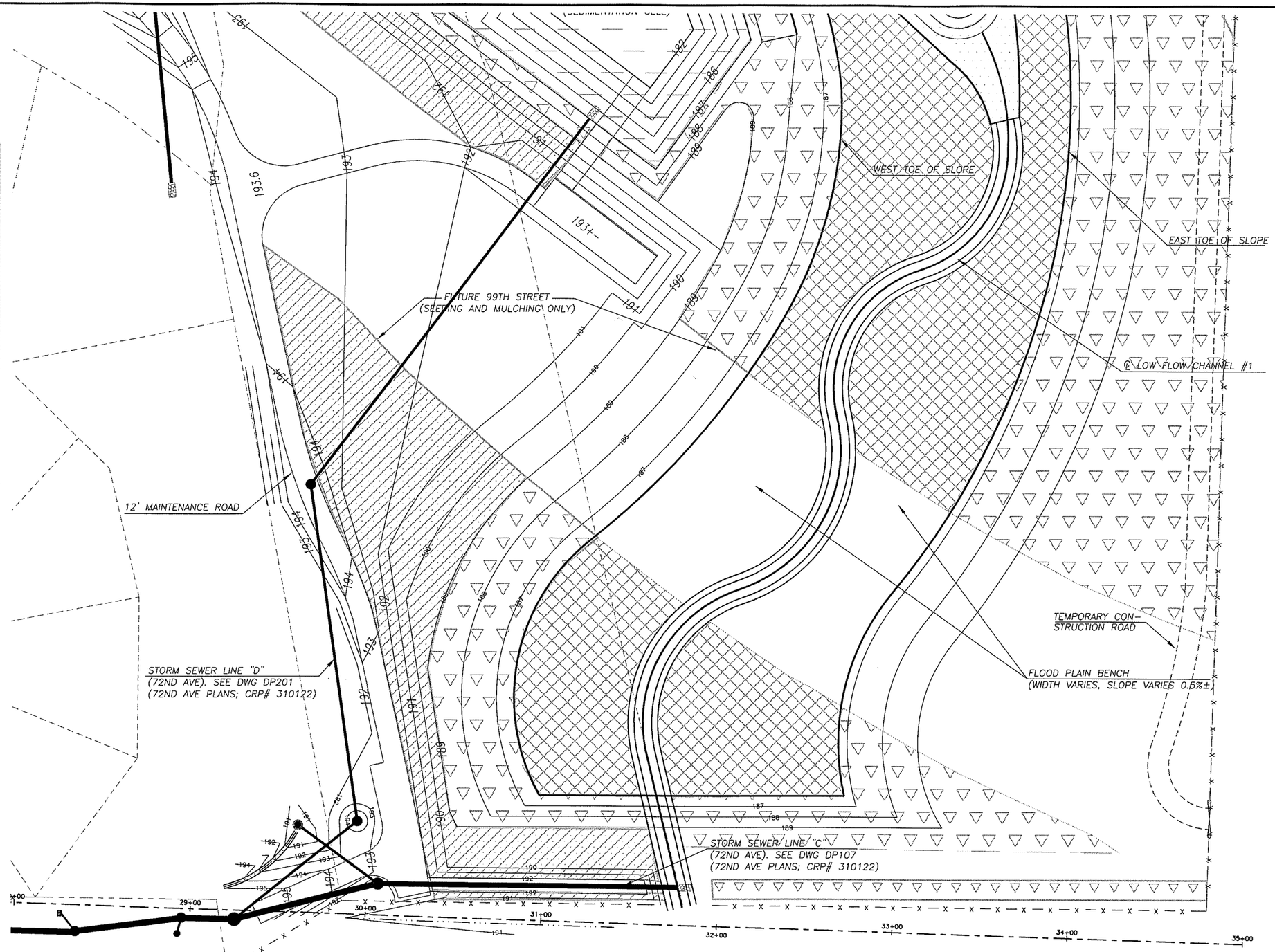
WETLAND MITIGATION 3
VICINITY MAP
NTS



PLANT ASSOCIATIONS

- EMERGENT
- WILLOW
- ASH/COTTONWOOD
- ASPEN
- OAK
- STORMWATER WETLAND



NOTES:

1. SEE DWGS. WM3G1–G5 AND WM3S1–S5 FOR GRADING AND STAKING INFORMATION.

2. SEE DWG. DWM2 FOR WETLAND DETAILS. SEE DWG WMPL FOR PLANTING LISTS AND QUANTITIES.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. WETLAND PLANTING WILL BE COMPLETED BY COUNTY STAFF FOLLOWING COMPLETION OF CONSTRUCTION.

4. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ROAD. COUNTY WILL REMOVE ROAD UPON COMPLETION OF PLANTING OPERATIONS.

PRELIMINARY

SCALE IN FEET
30 0 30 60

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3P1
SHEET	OF

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STATE OF WASHINGTON
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BENNION ROGERS
PROFESSIONAL ENGINEER
EXPIRES JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; PLANTING (SHT. 1 OF 5)

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WASHINGTON

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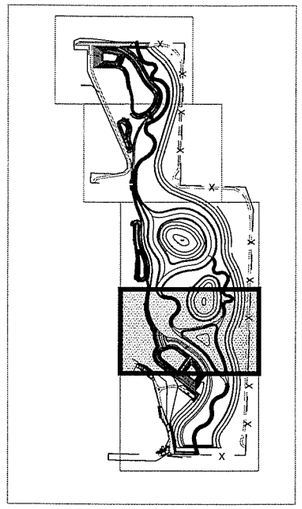
PRELIMINARY

WETLAND MITIGATION 3
VICINITY MAP
NTS



PLANT ASSOCIATIONS

- EMERGENT
- WILLOW
- ASH/COTTONWOOD
- ASPEN
- OAK
- STORMWATER WETLAND

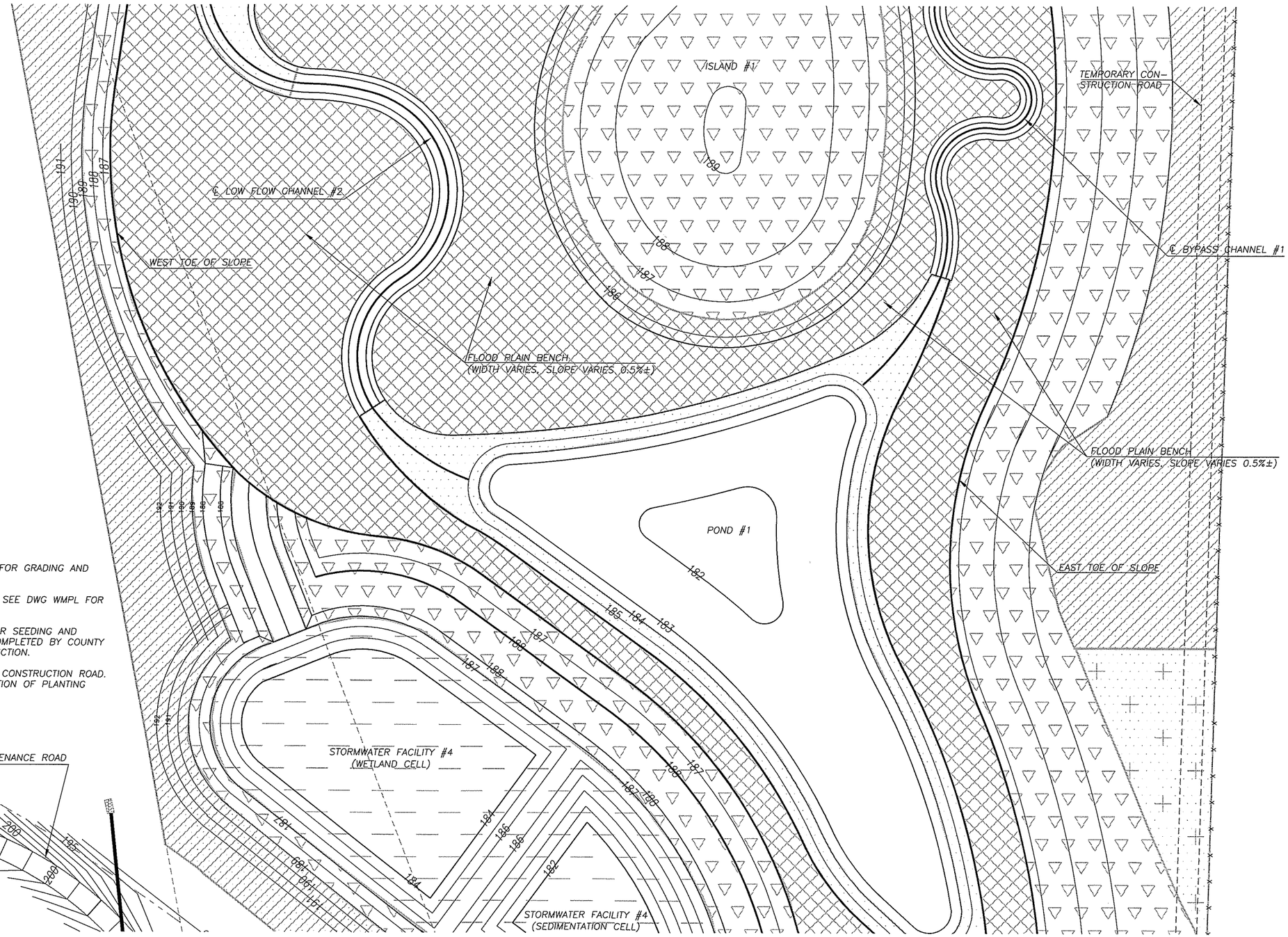
NOTES:

1. SEE DWGS. WM3G1–G5 AND WM3S1–S5 FOR GRADING AND STAKING INFORMATION.

2. SEE DWG. DWM2 FOR WETLAND DETAILS. SEE DWG WMPL FOR PLANTING LISTS AND QUANTITIES.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. WETLAND PLANTING WILL BE COMPLETED BY COUNTY STAFF FOLLOWING COMPLETION OF CONSTRUCTION.

4. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ROAD. COUNTY WILL REMOVE ROAD UPON COMPLETION OF PLANTING OPERATIONS.



DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3P2
SHEET	OF

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MILTON WASHINGTON
NIGHT
STATE OF WASHINGTON
21148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; PLANTING (SHT. 2 OF 5)

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CLARK COUNTY
WASHINGTON

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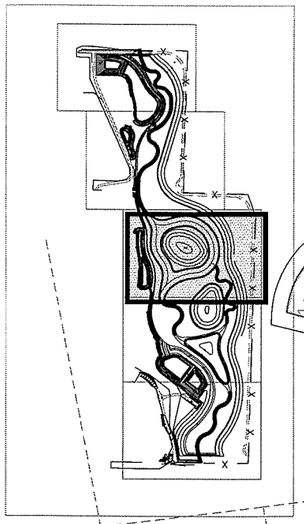
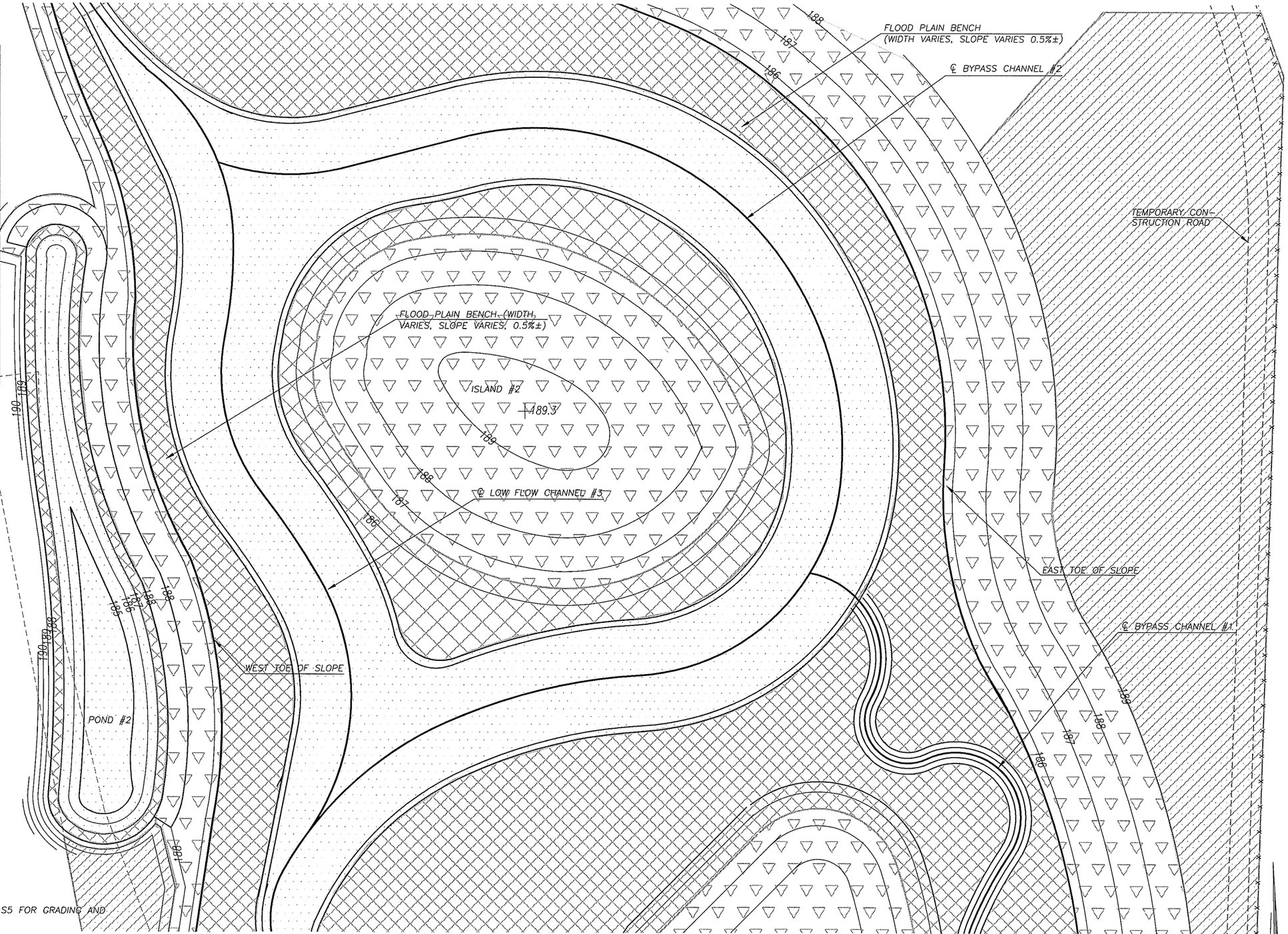
WETLAND MITIGATION 3
VICINITY MAP
NTS





PLANT ASSOCIATIONS

- EMERGENT
- WILLOW
- ASH/COTTONWOOD
- ASPEN
- OAK
- STORMWATER WETLAND

NOTES:

1. SEE DWGS. WM3G1–G5 AND WM3S1–S5 FOR GRADING AND STAKING INFORMATION.

2. SEE DWG. DWM2 FOR WETLAND DETAILS. SEE DWG WMPL FOR PLANTING LISTS AND QUANTITIES.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. WETLAND PLANTING WILL BE COMPLETED BY COUNTY STAFF FOLLOWING COMPLETION OF CONSTRUCTION.

4. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ROAD. COUNTY WILL REMOVE ROAD UPON COMPLETION OF PLANTING OPERATIONS.

PRELIMINARY

SCALE IN FEET
30 0 30 60

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3P3
SHEET	OF

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JOHN W. MILLER, JR. STATE OF WASHINGTON 18455 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JANUARY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; PLANTING (SHT. 3 OF 5)

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CLARK COUNTY
WASHINGTON

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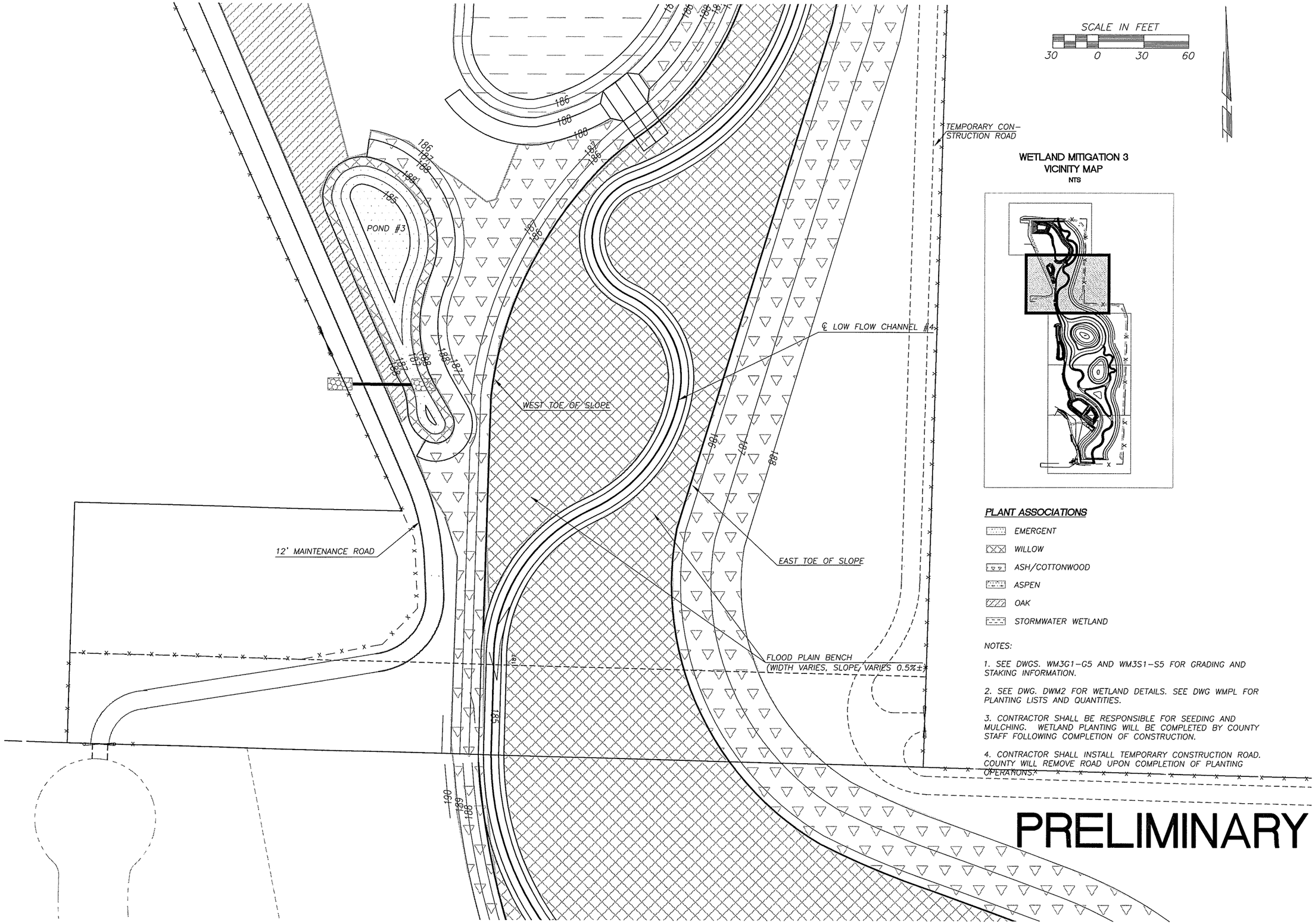

WETLAND MITIGATION 3
VICINITY MAP
NTS

PLANT ASSOCIATIONS

- EMERGENT
- WILLOW
- ASH/COTTONWOOD
- ASPEN
- OAK
- STORMWATER WETLAND

NOTES:

1. SEE DWGS. WM3G1–G5 AND WM3S1–S5 FOR GRADING AND STAKING INFORMATION.

2. SEE DWG. DWM2 FOR WETLAND DETAILS. SEE DWG WMPL FOR PLANTING LISTS AND QUANTITIES.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. WETLAND PLANTING WILL BE COMPLETED BY COUNTY STAFF FOLLOWING COMPLETION OF CONSTRUCTION.

4. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ROAD. COUNTY WILL REMOVE ROAD UPON COMPLETION OF PLANTING OPERATIONS.

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3P4
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
JOHN E. MILNE
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; PLANTING (SHT 4 OF 5)

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CLARK COUNTY
WASHINGTON

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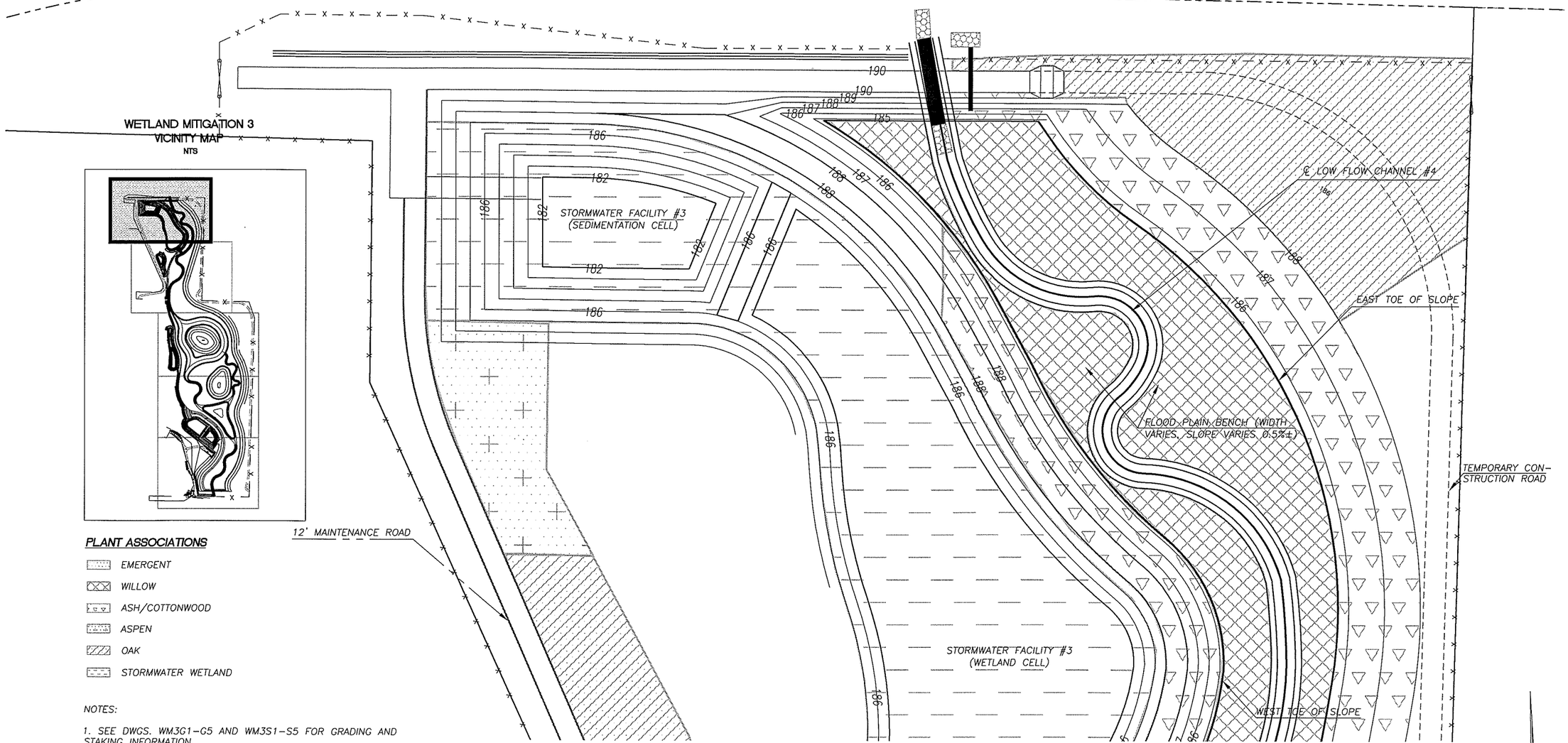

PLANT ASSOCIATIONS

- EMERGENT
- WILLOW
- ASH/COTTONWOOD
- ASPEN
- OAK
- STORMWATER WETLAND

NOTES:

1. SEE DWGS. WM3G1–G5 AND WM3S1–S5 FOR GRADING AND STAKING INFORMATION.

2. SEE DWG. DWM2 FOR WETLAND DETAILS. SEE DWG WMPL FOR PLANTING LISTS AND QUANTITIES.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING AND MULCHING. WETLAND PLANTING WILL BE COMPLETED BY COUNTY STAFF FOLLOWING COMPLETION OF CONSTRUCTION.

4. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ROAD. COUNTY WILL REMOVE ROAD UPON COMPLETION OF PLANTING OPERATIONS.

PRELIMINARY

SCALE IN FEET
30 0 30 60

DESIGNED	JM
DRAWN	RRK
CRP	310122
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	WM3P5
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MICHAEL D. WIGMINTON
STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; PLANTING (SHT 5 OF 5)

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CLARK COUNTY WASHINGTON

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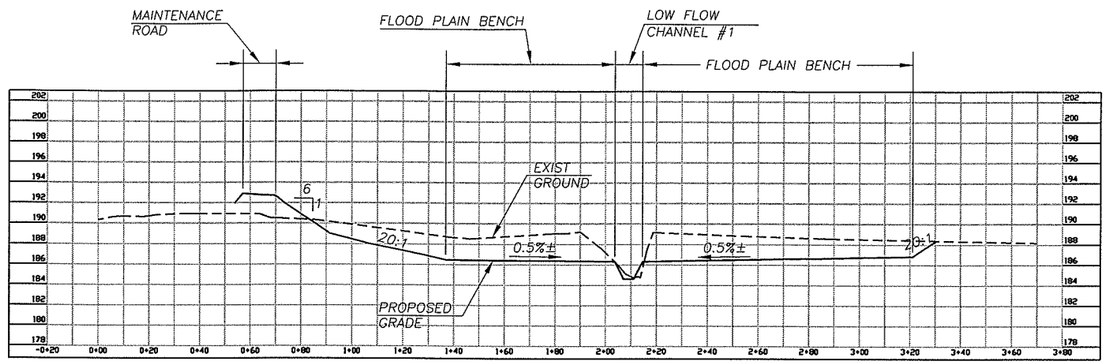
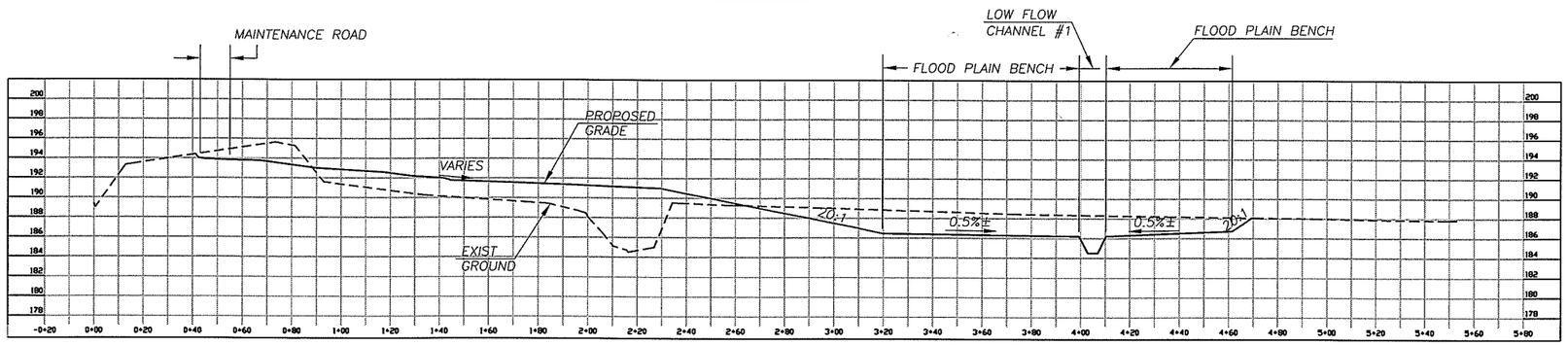


SECTION A-A



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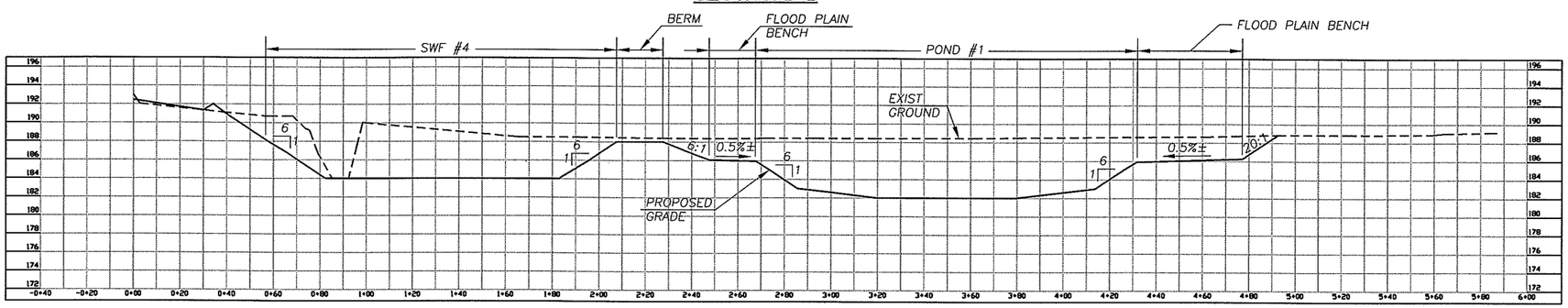
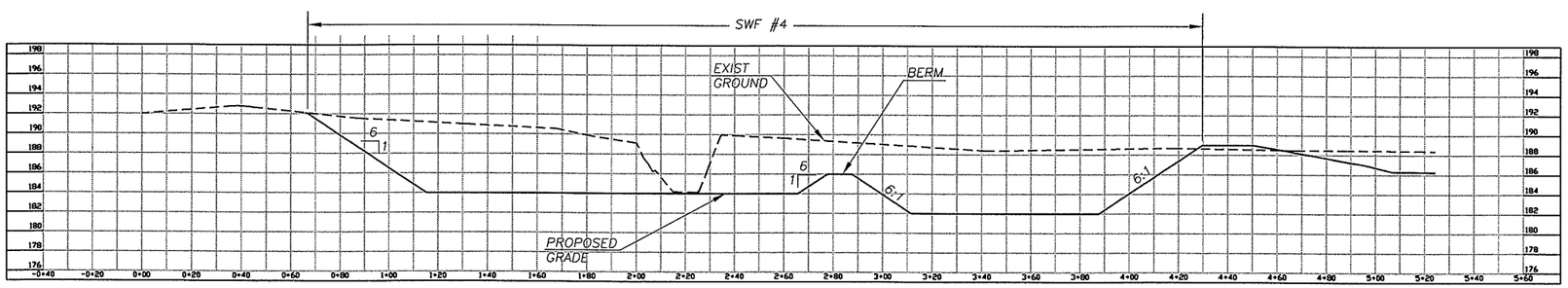


SECTION C-C



SECTION D-D

SCALE IN FEET

30 0 30 60

PRELIMINARY

NOTES:
1. SEE SHEET DWM1 FOR TYPICAL CROSS SECTIONS AND DETAILS.

2. SEE SHEETS WM3 "G", "S", AND "P" DWGS FOR GRADING, STAKING, AND PLANTING PLANS.

DESIGNED	JM
DRAWN	RRK
CRP	301422
HOR.	1"=30'
VERT.	1"=3'
DATE	11/29/04
DWG:	WM3X1
SHEET	OF

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

STATE OF WASHINGTON ALLAN E. STEPHENS 37148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; CROSS SECTIONS I

proud past, promising future

CLARK COUNTY WASHINGTON

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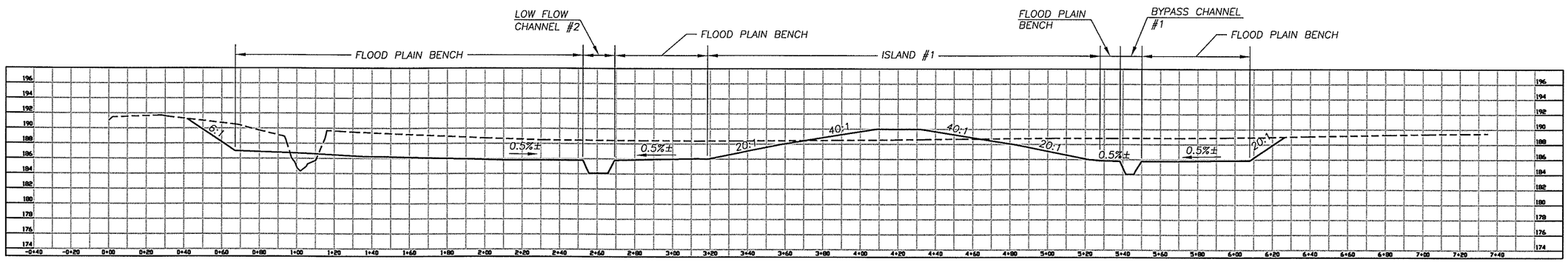
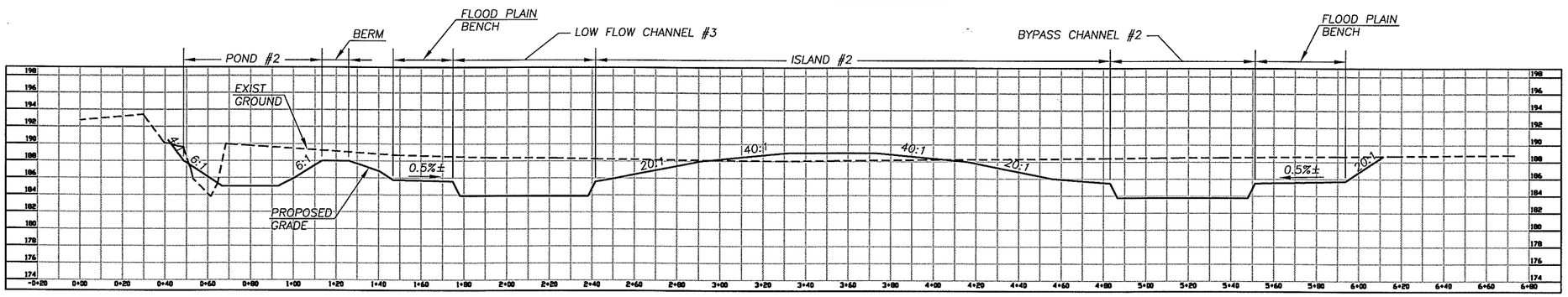
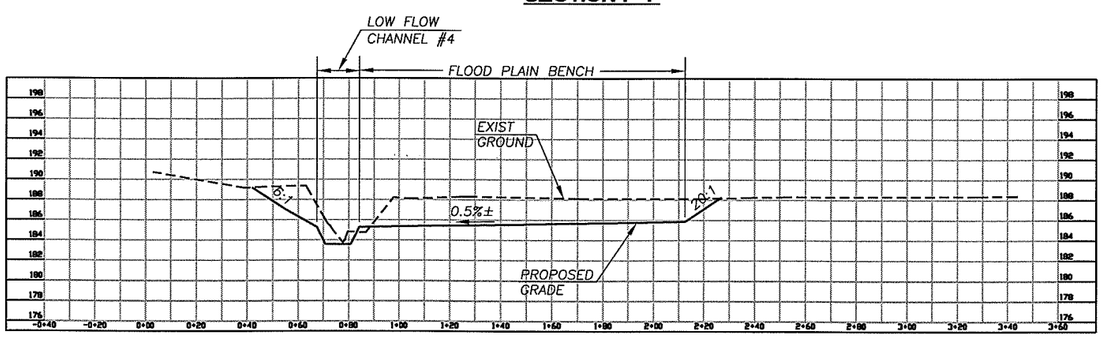


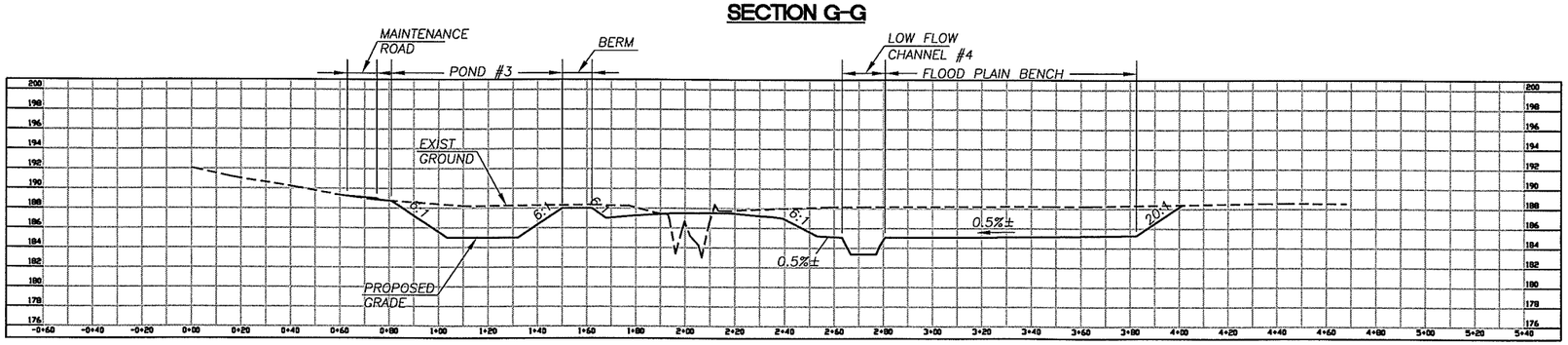
SECTION E-E



SECTION F-F



SECTION G-G



SECTION H-H

SCALE IN FEET

30 0 30 60

NOTES:
1. SEE SHEET DWM1 FOR TYPICAL CROSS SECTIONS AND DETAILS.

2. SEE SHEETS WM3 "G", "S", AND "P" DWGS FOR GRADING, STAKING, AND PLANTING PLANS.

PRELIMINARY

DESIGNED	JM
DRAWN	RRK
CRP	301422
HOR.	1"=30'
VERT.	1"=3'
DATE	11/29/04
DWG:	WM3X2
SHEET	OF

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

JOHN M. MILLER STATE OF WASHINGTON 17148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 7, 2005

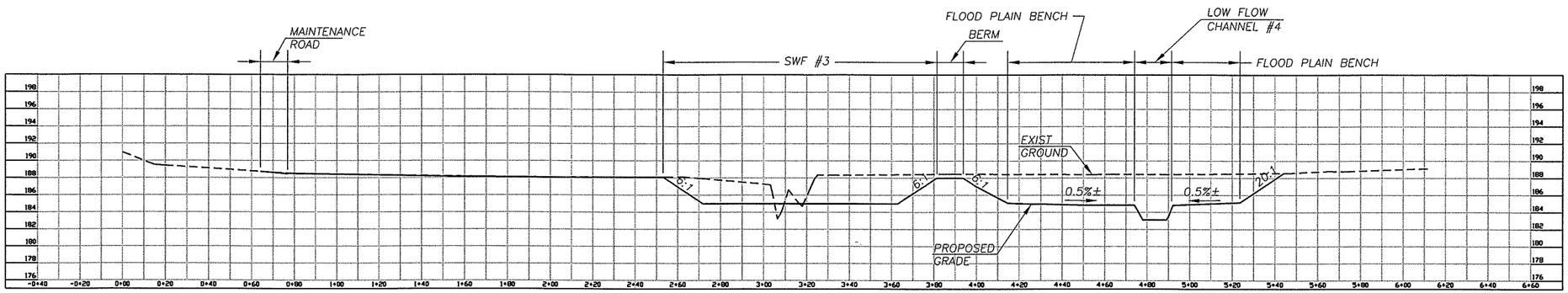
DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; CROSS SECTIONS II

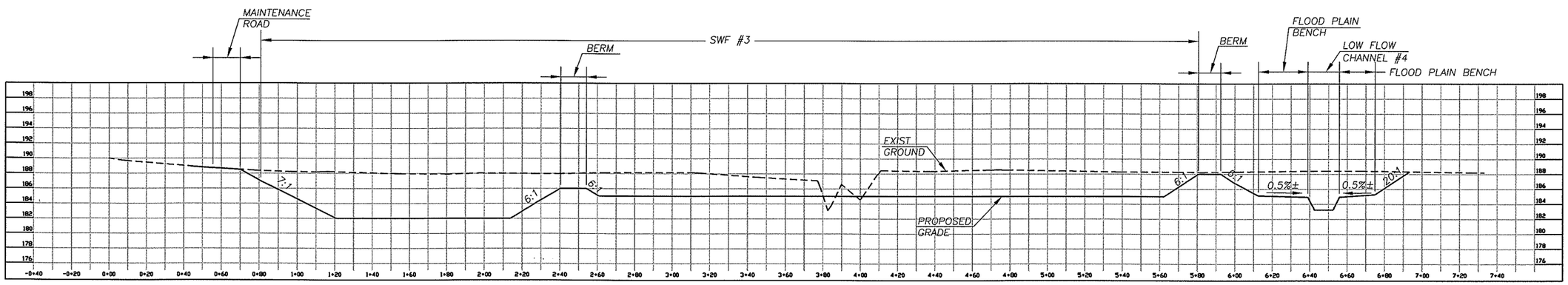
proud past, promising future

CLARK COUNTY WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\WM3X1-3.dwg, 11/23/2004 11:49:09 AM, kerlinr



SECTION I-I



SECTION J-J

SCALE IN FEET

30 0 30 60

NOTES:
1. SEE SHEET DWM1 FOR TYPICAL CROSS SECTIONS AND DETAILS.

2. SEE SHEETS WM3 "G", "S", AND "P" DWGS FOR GRADING, STAKING, AND PLANTING PLANS.

PRELIMINARY

DESIGNED	JM
DRAWN	RRK
CRP	301422
HOR.	1"=30'
VERT.	1"=3'
DATE	11/29/04
DWG:	WM3X3
SHEET	OF

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

STATE OF WASHINGTON MARK E. MILLER 21148 REGISTERED PROFESSIONAL ENGINEER EXPIRES: OCT 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREA #3; CROSS SECTIONS III

proud past, promising future

CLARK COUNTY WASHINGTON

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WETLAND MITIGATION AREAS; PLANTING LISTS

Plant Type	Species	Common Name	Size	Association *	SWF1 Northmoor	SWF2 Wilding	SWF3&4 Schuller Stevens	Total
Tree	*Fraxinus latifolia*	Oregon ash	3 gal	Ash/Cot				
	Populus balsamifera	black cottonwood	3 gal	Ash/Cot				
	Populus tremuloides	quaking aspen	3 gal	Aspen				
	Quercus garryana	Oregon white oak	5 gal	Oak				
	TOTAL Trees							
Understory and Shrub	*Amelanchier alnifolia*	serviceberry	3 gal	Oak, Asp				
	Cornus sericea	red osier dogwood	1 gal	Ash/Cot				
	Corylus cornuta	hazel	3 gal	Oak, Asp				
	Lonicera involucrata	twinberry	3 gal	Ash/Cot				
	Malus fusca	Pacific crabapple	3 gal	Ash/Cot				
	Mahonia aquifolium	tall Oregongrape	3 gal	Oak, Asp				
	Oemleria cerasiformis	osoberry	3 gal	Oak, Asp				
	Physocarpus capitatus	ninebark	3 gal	Ash/Cot				
	Rhamnus purshiana	cascara	3 gal	Ash/Cot				
	Rosa nutkana	Nootka rose	1 gal	Ash/Cot				
	Salix lucida lasiocarpa	Pacific willow	1 gal	Willow				
	Salix piperii	Piper's willow	1 gal	Willow				
	Salix sitchensis	Sitka willow	1 gal	Willow				
	Sambucus racemosa	Red elderberry	1 gal	Ash/Cot				
	Symphorocarpos alba	snowberry	1 gal	Oak, Asp				
	TOTAL Understory and Shrub							
Herbaceous species	*Alisma plantago-aquatica*	water plantain	seed	Emergent				
	Carex vesicaria	inflated sedge	seed	Emergent				
	Glyceria occidentalis	Western manna	seed	Emergent				
	Leersia oryzoides	rice cutgrass	seed	Emergent				
	Myosotis laxa	small-flowered	seed	Emergent				
	Polystichum munitum	sword fern	4"	Oak, Asp				
	Sagitaria latifolia	wapato	seed	Emergent				
	Scirpus tabernaemonti	hardstem bulrush	seed	Emergent				
	Total Herbaceous Species							
	GRAND TOTAL							

* Ash/Cot = Oregon ash / black cottonwood association; Aspen = quaking aspen association; Oak = Oregon white oak ass
Willow = willow association; Emergent = Emergent wetland (herbaceous) association

DESIGNED MME/JM
DRAWN KMB
CRP 301422
HOR. NA
VERT. NA
DATE 11/29/04
DWG. WMPL
SHEET OF

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

STATE OF WASHINGTON MILNE 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREAS; PLANTING LISTS

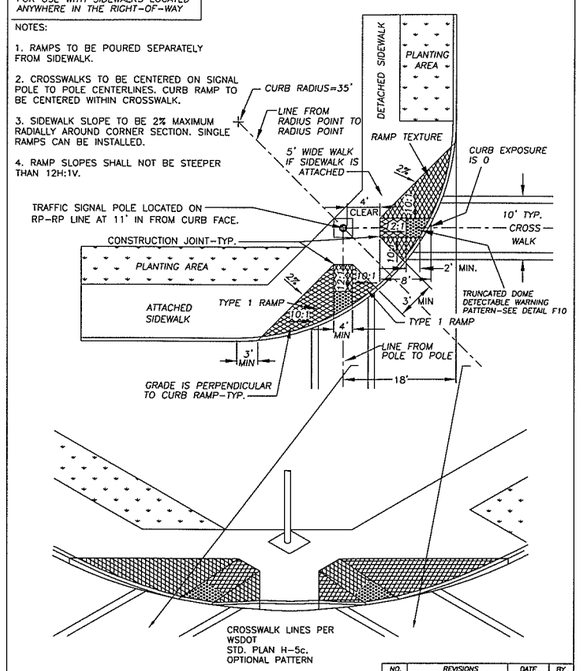
proud past, promising future
CLARK COUNTY WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\WMPL.dwg, 11/23/2004 2:55:19 PM, keelinr

NEW CONSTRUCTION
FOR USE WITH SIDEWALKS LOCATED ANYWHERE IN THE RIGHT-OF-WAY

NOTES:

1. RAMPS TO BE POURED SEPARATELY FROM SIDEWALK.
2. CROSSWALKS TO BE CENTERED ON SIGNAL POLE TO POLE CENTERLINES. CURB RAMP TO BE CENTERED WITHIN CROSSWALK.
3. SIDEWALK SLOPE TO BE 2% MAXIMUM RADIALLY AROUND CORNER SECTION. SINGLE RAMPS CAN BE INSTALLED.
4. RAMP SLOPES SHALL NOT BE STEEPER THAN 12H:1V.



NO.	REVISIONS	DATE	BY
1	TRUNCATED DOMES	6/14/03	SCH

DWG: F2.dwg

Department of Public Works
CLARK COUNTY
WASHINGTON
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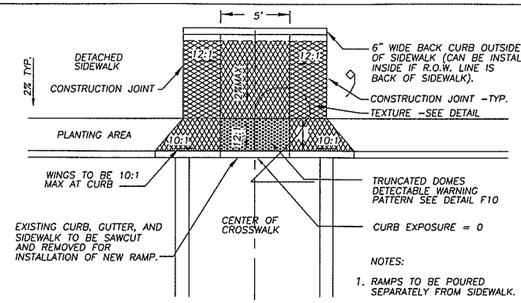
TYPE 2 RAMP

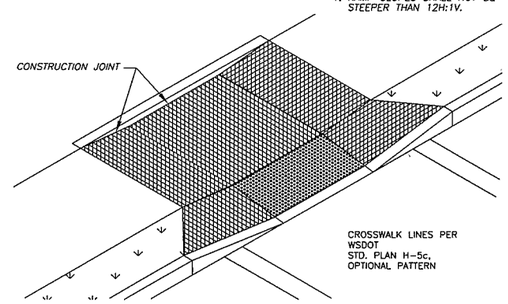
APPROVED
PETER CAPELLI 8/22/00
COUNTY ENGINEER DATE

F2
DESIGNED DB
DRAWN KB
DATE 7/24/00



NOTES:

1. RAMPS TO BE POURED SEPARATELY FROM SIDEWALK.
2. CENTER RAMP ON CENTERLINE OF CROSSWALK.
3. BACK CURB IS TYPE E-1 PER STD. PLAN F18.
4. RAMP SLOPES SHALL NOT BE STEEPER THAN 12H:1V.



NO.	REVISIONS	DATE	BY
1	TRUNCATED DOME PATTERN	6/14/03	SCH

DWG: F4.dwg

Department of Public Works
CLARK COUNTY
WASHINGTON
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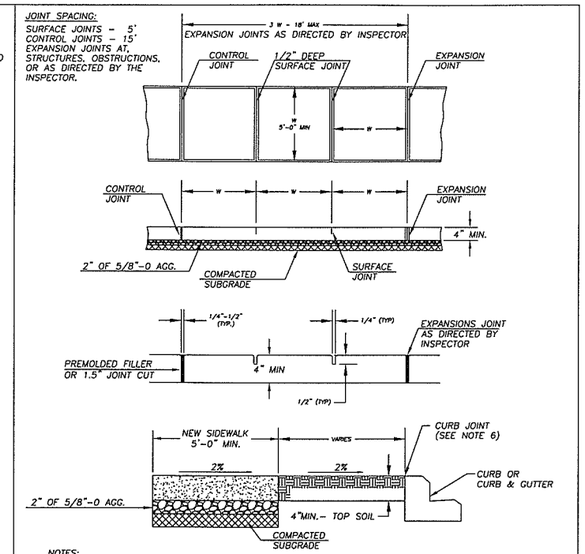
TYPE 4 RAMP

APPROVED
PETER CAPELLI 8/22/00
COUNTY ENGINEER DATE

F4
DESIGNED DB
DRAWN KB
DATE 7/24/00

JOINT SPACING:
SURFACE JOINTS - 5'
CONTROL JOINTS - 15'
EXPANSION JOINTS AT, STRUCTURES, OBSTRUCTIONS, OR AS DIRECTED BY THE INSPECTOR.



NOTES:

1. CONCRETE SHALL BE 3,000 PSI MIN. (CLASS 3000). 3 1/2" SLUMP (± 1")
2 FINISH SHALL BE MEDIUM BROOM PERPENDICULAR TO PEDESTRIAN TRAFFIC UNLESS OTHERWISE DIRECTED.
3. ALL EXISTING EDGES SHALL BE SAWCUT.
4. NO FILLER REQUIRED FOR SURFACE JOINTS.
5. ALL JOINTS AND EDGES SHALL BE FINISHED WITH 1/4" RADIUS EDGER (3" SMOOTH EACH SIDE)
6. FOR SIDEWALKS ADJACENT TO THE CURB AND POURED AT THE SAME TIME AS THE CURB, THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS.

NO.	REVISIONS	DATE	BY
1	CHANGE SUBGRADE &	03/28/02	KIE
2	2" BASE AGG. & NOTES	10/07/02	SCH

DWG: F12.dwg

Department of Public Works
CLARK COUNTY
WASHINGTON
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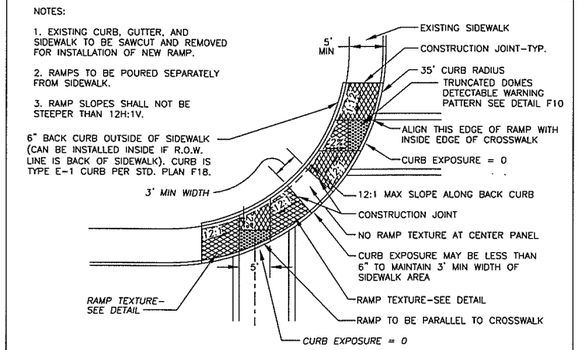
SIDEWALK DETAIL

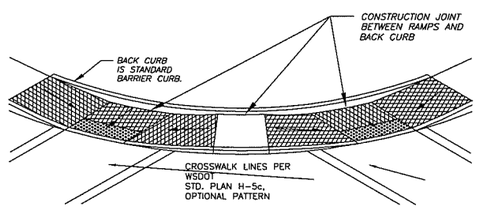
APPROVED
PETER CAPELLI 01/01/04
COUNTY ENGINEER DATE

STANDARD
F12
PLAN No.
DESIGNED DB
DRAWN KB
DATE 10/08/02

NOTES:

1. EXISTING CURB, GUTTER, AND SIDEWALK TO BE SAWCUT AND REMOVED FOR INSTALLATION OF NEW RAMP.
2. RAMPS TO BE POURED SEPARATELY FROM SIDEWALK.
3. RAMP SLOPES SHALL NOT BE STEEPER THAN 12H:1V.





THIS TYPE OF RAMP IS ONLY TO BE USED IN EXISTING RESTRICTED RIGHT-OF-WAY AREAS, DOUBLE RAMP SHOWN-SINGLE RAMP MAY BE USED AT SOME INSTALLATIONS.

NO.	REVISIONS	DATE	BY
1	TRUNCATED DOMES	6/14/03	SCH

DWG: F2b.dwg

Department of Public Works
CLARK COUNTY
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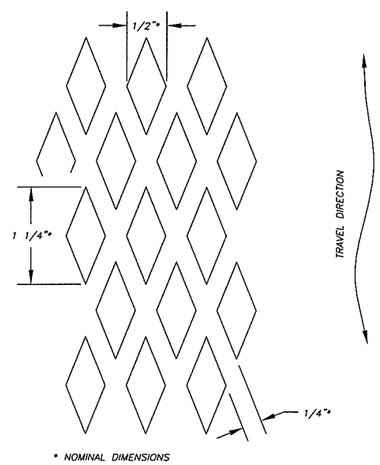
TYPE 2 ALTERNATE RAMP - DOUBLE

APPROVED
PETER CAPELLI 8/22/00
COUNTY ENGINEER DATE

F2b
DESIGNED DB
DRAWN KB
DATE 7/24/00



* NOMINAL DIMENSIONS

RAMP TEXTURE DETAIL

RAMP TEXTURE IS TO BE DONE WITH AN EXPANDED METAL GRATE PLACED AND REMOVED FROM WET CONCRETE TO LEAVE A DIAMOND PATTERN AS SHOWN. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE IN THE DIRECTION OF TRAVEL. GROOVES SHALL BE 1/8" DEEP AND 1/4" WIDE. ALTERNATIVE TEXTURE PATTERNS SHALL BE APPROVED BY REVIEWING AUTHORITY BEFORE USE.

NO.	REVISIONS	DATE	BY

DWG: F11.dwg

Department of Public Works
CLARK COUNTY
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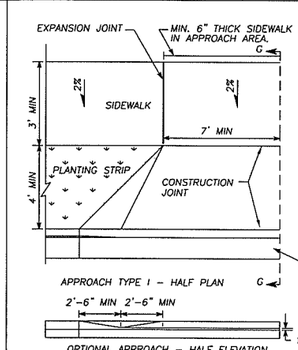
RAMP TEXTURE DETAIL

APPROVED
PETER CAPELLI 8/22/00
COUNTY ENGINEER DATE

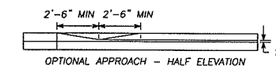
F11
DESIGNED DB
DRAWN KB
DATE 7/24/00



APPROACH TYPE I - HALF PLAN

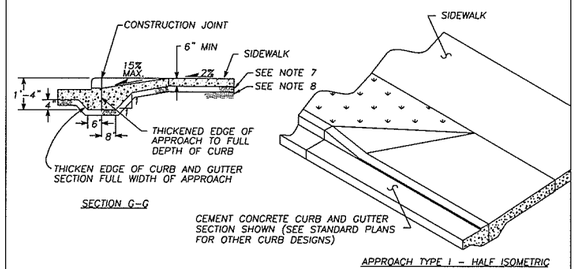
NOTES:

1. A MINIMUM 3' WIDE ACCESSIBLE ROUTE SHALL BE MAINTAINED IN ALL PEDESTRIAN ACCESSIBLE AREAS.
2. CONTRACTION POINTS SHALL BE PLACED ALONG SIDEWALKS IN ACCORD WITH SIDEWALK DETAIL. ALL JOINTS SHALL BE CLEANED AND EDGED.
3. CHANGES IN LEVEL UP TO 1/4" MAY BE VERTICAL AND WITHOUT EDGE TREATMENT. CHANGES IN LEVEL BETWEEN 1/4" AND 1/2" SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 2:1.
4. CEMENT CONCRETE APPROACHES SHALL BE CONSTRUCTED OF AIR-ENTRAINED CLASS 3000 AND MAY BE POURED INTEGRAL WITH CURB.
5. EXISTING CURB, GUTTER, AND SIDEWALK TO BE SAWCUT AND REMOVED FOR INSTALLATION OF APPROACH.
6. COMMERCIAL DRIVEWAY REQUIRES REINFORCING STEEL (6"x6" 10 GA WIRE MESH) MIN. 3" COVER.
7. 3" DEPTH 3/4"-0 CRUSHED AGGREGATE BASE COMPACTED TO 95% OF MAX. DRY DENSITY.
8. SUBGRADE PREPARATION PER WSDOT STD. SPEC. 2-06.3(1).



OPTIONAL APPROACH - HALF ELEVATION

NOTE: USE TYPE 1 APPROACH ONLY WHEN A SIDEWALK IS USED AT THE BACK OF THE APPROACH.



SECTION G-G

APPROACH TYPE I - HALF ISOMETRIC

NO.	REVISIONS	DATE	BY
1	NOTE #6, 7, 8	10/09/02	SCH

DWG: F14.dwg

Department of Public Works
CLARK COUNTY
WASHINGTON
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DETAIL - TYPE 1
CEMENT CONCRETE APPROACH

APPROVED
PETER CAPELLI 8/22/00
COUNTY ENGINEER DATE

F14
DESIGNED DB
DRAWN KB
DATE 7/24/00

DESIGNED ME
DRAWN KB
CRP 301422
HOR. NA
VERT. NA
DATE 11/29/04
DWG: RD01
SHEET OF

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

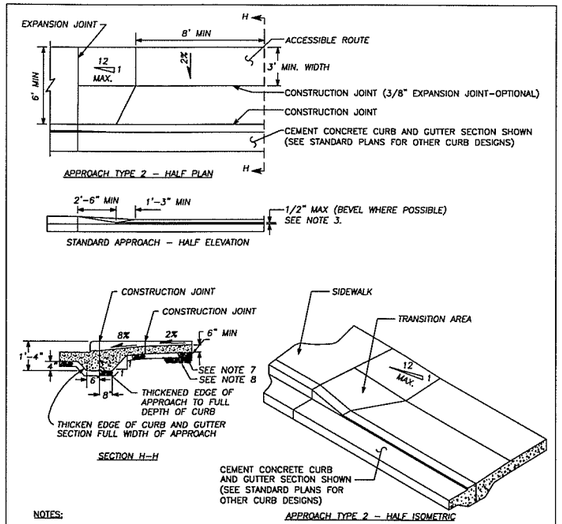
MICHAEL M. EDWARDS
STATE OF WASHINGTON
19630
REGISTERED PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DETAILS

proud past, promising future
CLARK COUNTY
WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\RD01-2.dwg, 11/22/2004 3:14:09 PM, kerlinr



NOTES:

1. A MINIMUM 3' WIDE ACCESSIBLE ROUTE SHALL BE MAINTAINED IN ALL PEDESTRIAN ACCESSIBLE AREAS.
2. CONTRACTION JOINTS SHALL BE PLACED ALONG SIDEWALKS IN ACCORD WITH SIDEWALK DETAIL. ALL JOINTS SHALL BE CLEANED AND EDGED.
3. CHANGES IN LEVEL UP TO 1/4" MAY BE VERTICAL AND WITHOUT EDGE TREATMENT. CHANGES IN LEVEL BETWEEN 1/4" AND 1/2" SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 2:1.
4. CEMENT CONCRETE APPROACHES SHALL BE CONSTRUCTED OF AIR-ENTRAINED CONCRETE CLASS 3000 AND MAY BE POURED INTEGRAL WITH CURB.
5. EXISTING CURB, GUTTER AND SIDEWALK TO BE SAWCUT AND REMOVED FOR INSTALLATION OF APPROACH.
6. COMMERCIAL DRIVEWAY REQUIRES REINFORCING STEEL (6"x6" 10 GA WIRE MESH) MIN. 3" COVER
7. 3" DEPTH 3/4"-0 CRUSHED AGGREGATE BASE COMPACTED TO 95% OF MAX. DRY DENSITY.
8. SUBGRADE PREPARATION PER WSDOT STD. SPEC. 2-06.3(1).

NO.	REVISIONS	DATE	BY
1	NOTES #6, 7, 8	10/28/02	SCH

DWG. F15.DWG

Department of Public Works
CLARK COUNTY
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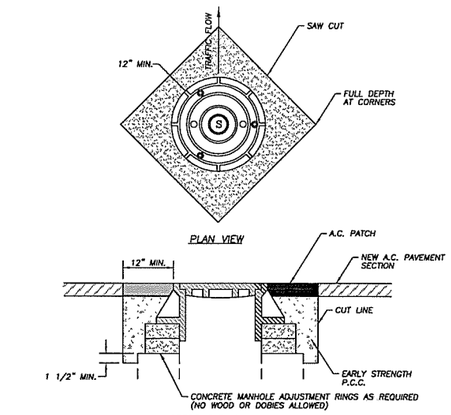
CEMENT CONCRETE APPROACH DETAIL – TYPE 2

APPROVED
Peter Capen 8/22/00
COUNTY ENGINEER DATE

F15

DESIGNED DB
DRAWN KB
DATE 7/29/00



STEP 1 COVER EXSITING MANHOLE WITH BUILDING PAPER AND CONSTRUCT A.C. PAVEMENT OVER TOP OF MANHOLE.
STEP 2 SAW CUT AND REMOVE PAVEMENT AROUND MANHOLE 12" MIN. FROM MANHOLE FRAME.
STEP 3 RAISE MANHOLE FRAME AND COVER USING CONCRETE RINGS AND MECHANICAL ADJUSTMENT DEVICES TO FINISH GRADE MATCHING PROFILE AND CROSS SLOPE.
STEP 4 BACKFILL WITH EARLY STRENGTH P.C.C. AND A.C. TO DEPTHS AS DIRECTED.

NO.	REVISIONS	DATE	BY

DWG. F27.dwg

Department of Public Works
CLARK COUNTY
WASHINGTON
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MANHOLE ADJUSTMENT DETAIL

APPROVED
Peter Capen 8/22/00
COUNTY ENGINEER DATE

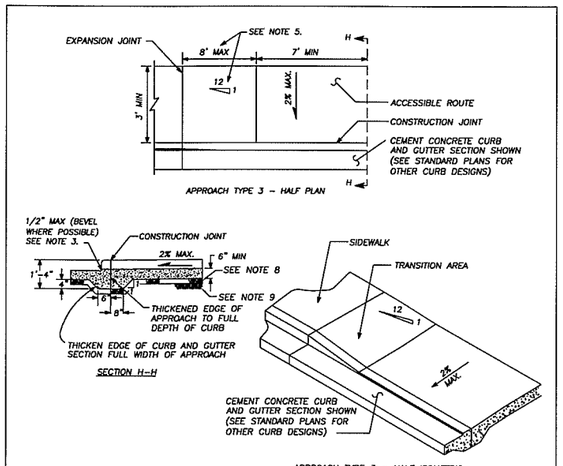
F27

DESIGNED
DRAWN
DATE 7/29/00

CEMENT CONCRETE APPROACH SCHEDULE

STATION		WIDTH	TYPE
ST. JOHNS ROAD			
14+59	LT	36'	2
14+74	RT	30'	2
16+47	LT	40'	2
18+60	LT	28'	2
26+62	LT	18'	1
27+53	LT	20'	1
33+20	RT	36'	1
34+34	RT	18'	1
35+32	RT	18'	1
37+35	RT	20'	1
60+93	LT	18'	2
62+05	RT	40'	1
65+52	RT	20'	1
69+61	LT	33'	1
70+61	RT	18'	1
75+02	LT	40'	1
75+32	RT	18'	1
76+33	LT	18'	1
77+40	LT	20'	1
77+58	RT	18'	1
78+93	LT	20'	2

STATION		WIDTH	TYPE
NE 65TH AVENUE			
0+95	RT	20'	2
1+50	LT	15'	2
NE 109TH STREET			
10+33	RT	20'	2
11+55	LT	31'	2
12+05	LT	40'	2
16+73	RT	18'	2
NE 72ND AVENUE			
84+05	LT	30'	2
92+29	LT	40'	2
93+47	RT	36'	2
93+61	LT	30'	2
94+17	LT	27'	2
94+64	LT	40'	2
NE 99TH STREET			
1+33	RT	33'	2



NOTES:

1. A MINIMUM 3' WIDE ACCESSIBLE ROUTE SHALL BE MAINTAINED IN ALL PEDESTRIAN ACCESSIBLE AREAS.
2. CONTRACTION JOINTS SHALL BE PLACED ALONG SIDEWALKS IN ACCORD WITH SIDEWALK DETAIL. ALL JOINTS SHALL BE CLEANED AND EDGED.
3. CHANGES IN LEVEL UP TO 1/4" MAY BE VERTICAL AND WITHOUT EDGE TREATMENT. CHANGES IN LEVEL BETWEEN 1/4" AND 1/2" SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 2:1.
4. TRANSITION AREA TO BE SLOPED AT 1v TO 12h, UNLESS STREET GRADE WOULD CREATE A TRANSITION LENGTH GREATER THAN 8', THEN THE MAXIMUM LENGTH OF 8' GOVERNS SLOPE.
5. CEMENT CONCRETE APPROACHES SHALL BE CONSTRUCTED OF AIR-ENTRAINED CONCRETE CLASS 3000 AND MAY BE POURED INTEGRAL WITH CURB.
6. EXISTING CURB, GUTTER AND SIDEWALK TO BE SAWCUT AND REMOVED FOR INSTALLATION OF APPROACH.
7. COMMERCIAL DRIVEWAY REQUIRES REINFORCING STEEL (6"x6"x10 GA MESH) MIN. 3" COVER.
8. 3" DEPTH 3/4"-0 CRUSHED AGGREGATE BASE COMPACTED TO 95% OF MAX. DRY DENSITY.
9. SUBGRADE PREPARED PER WSDOT STD. SPEC. 2-06.3(1)

NO.	REVISIONS	DATE	BY
1	NOTE # 7, 8, 9	7/24/02	SCH

DWG. F16.dwg

Department of Public Works
CLARK COUNTY
WASHINGTON
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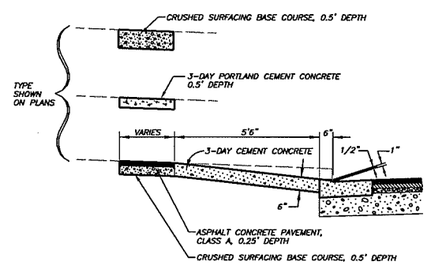
CEMENT CONCRETE APPROACH DETAIL – TYPE 3

APPROVED
Peter Capen 8/22/00
COUNTY ENGINEER DATE

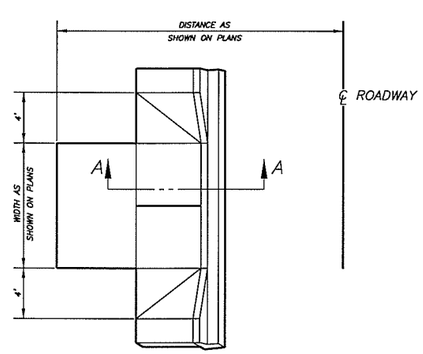
F16

DESIGNED DB
DRAWN KB
DATE 7/29/00



SECTION A-A

NTS



TYPICAL DRIVEWAY ENTRANCE

NTS

DESIGNED ME
DRAWN KB
CRP 301422
HOR. NA
VERT. NA
DATE 11/29/04
DWG: RD02
SHEET OF

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

STATE OF WASHINGTON MICHAEL M. EMICK 22630 REGISTERED PROFESSIONAL ENGINEER
EXPIRES:JANUARY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DETAILS

proud past, promising future
CLARK COUNTY
WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\RD01-2.dwg, 11/22/2004 3:16:02 PM, kerlinr

NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH APWA STANDARD SPECIFICATIONS, CLARK COUNTY PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN. CLEARANCE. SEE PLAN NO.D1.5 MANHOLE DETAILS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HAND HOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000. PRESTRESSED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF FACTORY PROVIDED KNOCKOUTS ARE USED. KNOCKOUTS ARE TO BE FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. SEE MANHOLE DIMENSION TABLE BELOW.
6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH SEC. 7-05.3 AND THE REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
8. FOR HEIGHTS OF 12' OR LESS, MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. FOR HEIGHTS OVER 12' MIN. SOIL BEARING VALUE SHALL EQUAL 3,800 POUNDS PER SQUARE FOOT.
9. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS, AND TOP SLABS, SEE PLAN NO. D1.5, "MANHOLE DETAILS."
10. INSIDE DROP MAXIMUM TO BE 4' VERTICAL DISTANCE I.E. TO I.E.
11. KNOCKOUTS TO BE USED WHEN STUB OUT PIPE IS 3' OR LESS.
12. MINIMUM 0.20' FALL BETWEEN INLET AND OUTLET. ANY REDUCTION IN THIS DESIGN REQUIREMENT MUST BE APPROVED BY REVIEWING AUTHORITY.
13. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.

MANHOLE DIMENSION TABLE

DIA.	THICKNESS WALL	THICKNESS BASE	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL 60 N/PT EACH DIRECTION INTEGRAL BASE	SEPARATE BASE
48"	4"	6"	18"	6"	0.13	0.23
54"	4.5"	6"	24"	6"	0.19	0.25
60"	5"	6"	24"	6"	0.25	0.33

NO.	REVISIONS	DATE	BY

DWG: D1-1.DWG

Department of Public Works
CLARK COUNTY
WASHINGTON
proud past, promising future

STANDARD MANHOLE TYPE 1
48", 54", & 60"

APPROVED
Peter Capen
COUNTY ENGINEER
01/01/04
DATE

STANDARD D1.1
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03

NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH APWA STANDARD SPECIFICATIONS, CLARK COUNTY PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN. CLEARANCE. SEE PLAN NO.D1.5 MANHOLE DETAILS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HAND HOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000. PRESTRESSED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF FACTORY PROVIDED KNOCKOUTS ARE USED. KNOCKOUTS ARE TO BE FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. SEE MANHOLE DIMENSION TABLE BELOW.
6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH SEC. 7-05.3 AND THE REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
7. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000. PRESTRESSED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000.
8. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF FACTORY PROVIDED KNOCKOUTS ARE USED. KNOCKOUTS ARE TO BE FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
9. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. SEE MANHOLE DIMENSION TABLE BELOW.
10. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH SEC. 7-05.3 AND THE REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
11. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
12. FOR HEIGHTS OF 12' OR LESS, MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. FOR HEIGHTS OVER 12' MIN. SOIL BEARING VALUE SHALL EQUAL 3,800 POUNDS PER SQUARE FOOT.
13. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS, AND TOP SLABS, SEE PLAN NO. D1.5, "MANHOLE DETAILS."
14. INSIDE DROP MAXIMUM TO BE 4' VERTICAL DISTANCE I.E. TO I.E.
15. KNOCKOUTS TO BE USED WHEN STUB OUT PIPE IS 3' OR LESS.
16. MINIMUM 0.20' FALL BETWEEN INLET AND OUTLET. ANY REDUCTION IN THIS DESIGN REQUIREMENT MUST BE APPROVED BY REVIEWING AUTHORITY.
17. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.

MANHOLE DIMENSION TABLE

DIA.	THICKNESS WALL	THICKNESS BASE	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL 60 N/PT EACH DIRECTION INTEGRAL BASE	SEPARATE BASE
48"	4"	6"	18"	6"	0.13	0.23
54"	4.5"	6"	24"	6"	0.19	0.25
60"	5"	6"	24"	6"	0.25	0.33
72"	6"	6"	72"	12"	0.44	0.55
96"	8"	12"	84"	12"	0.62	0.89

NO.	REVISIONS	DATE	BY

DWG: D1-3.DWG

Department of Public Works
CLARK COUNTY
WASHINGTON
proud past, promising future

MANHOLE TYPE 3
48", 54", 60", 72", & 96"

APPROVED
Peter Capen
COUNTY ENGINEER
01/01/04
DATE

STANDARD D1.3
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03

NOTES:

1. USE SUBURBAN TYPE ONLY IN NON-TRAFFIC AREAS, AND ONLY WITH APPROVAL BY COUNTY.
2. COVER MATERIAL TO BE DUCTILE IRON ASTM A536 GRADE 80-55-06
3. FRAME MATERIAL TO BE GRAY CAST IRON ASTM A-48 CLASS 30.
4. SEE WSDOT STANDARD SPECIFICATIONS SEC. 7.05
5. COVER AND FRAME TO BE MACHINED TO A TRUE BEARING ALL AROUND.
6. NOTCH LID FOR LIFTING HOOK.

NO.	REVISIONS	DATE	BY

DWG: D1-6.DWG

Department of Public Works
CLARK COUNTY
WASHINGTON
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STANDARD MANHOLE FRAME AND COVER

APPROVED
Peter Capen
COUNTY ENGINEER
01/01/04
DATE

STANDARD D1.6
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 09/06/02

NO.	REVISIONS	DATE	BY

DWG: D2-1.DWG

Department of Public Works
CLARK COUNTY
WASHINGTON
proud past, promising future

CATCH BASIN OUTLET PIPE TRAP

APPROVED
Peter Capen
COUNTY ENGINEER
01/01/04
DATE

STANDARD D2.1
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/23/02

NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH APWA STANDARD SPECIFICATIONS, CLARK COUNTY PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN MANHOLE SHALL HAVE 6" MIN. CLEARANCE. SEE PLAN NO.D1.5 MANHOLE DETAILS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HAND HOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000. PRESTRESSED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF FACTORY PROVIDED KNOCKOUTS ARE USED. KNOCKOUTS ARE TO BE FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS MANHOLE WALL THICKNESS. SEE MANHOLE DIMENSION TABLE BELOW.
6. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH SEC. 7-05.3 AND THE REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
8. FOR HEIGHTS OF 12' OR LESS, MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT. FOR HEIGHTS OVER 12' MIN. SOIL BEARING VALUE SHALL EQUAL 3,800 POUNDS PER SQUARE FOOT.
9. FOR DETAILS SHOWING GRADE RING, LADDER, STEPS, HANDHOLDS, AND TOP SLABS, SEE PLAN NO. D1.5, "MANHOLE DETAILS."
10. INSIDE DROP MAXIMUM TO BE 4' VERTICAL DISTANCE I.E. TO I.E.
11. KNOCKOUTS TO BE USED WHEN STUB OUT PIPE IS 3' OR LESS.
12. MINIMUM 0.20' FALL BETWEEN INLET AND OUTLET. ANY REDUCTION IN THIS DESIGN REQUIREMENT MUST BE APPROVED BY REVIEWING AUTHORITY.
13. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.

MANHOLE DIMENSION TABLE

DIA.	THICKNESS WALL	THICKNESS BASE	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL 60 N/PT EACH DIRECTION INTEGRAL BASE	SEPARATE BASE
72"	6"	8"	60"	12"	0.35	0.45
96"	8"	12"	84"	12"	0.59	0.89

NO.	REVISIONS	DATE	BY

DWG: D1-2.DWG

Department of Public Works
CLARK COUNTY
WASHINGTON
proud past, promising future

MANHOLE TYPE 2
72" & 96"

APPROVED
Peter Capen
COUNTY ENGINEER
01/01/04
DATE

STANDARD D1.2
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03

NOTES:

1. PROPRIETARY MANHOLE HANDHOLDS AND STEPS ARE ACCEPTABLE, PROVIDED THAT THEY CONFORM TO SEC. R ASTM C478, AASHTO M199 AND MEET ALL WSDOT/APWA REQUIREMENTS.
2. ALL STEPS IN MANHOLES SHALL BE PROPRIETARY, STEP PROVIDED BY LS SHALL BE OPTIONAL. STEP PROVIDED BY LS SHALL BE SIMILAR, EXCEPT THAT PENETRATIONS OF OUTER WALL BY A LEG IS PROHIBITED.
3. HANDHOLDS AND STOPS SHALL HAVE "DROP" RUNGS OR PROTUBERANCES TO PREVENT SIDEWAYS SLIP.
4. LADDERS OR STEPS SHALL EXTEND TO WITHIN 18" OF BOTTOM OF MANHOLE.
5. HANGING LADDERS SHALL BE PERMANENTLY FASTENED TO MANHOLE WALL WITH ANCHORS OR BY BOLTING OR EMBEDDING IN CONCRETE. EACH SHALL BE EMBEDDED AT BOTTOM IN BASE.
6. ADDITIONAL SAFETY FEATURES MAY BE REQUIRED IN VERY DEEP OR UNUSUAL STRUCTURES.

NO.	REVISIONS	DATE	BY

DWG: D1-5.DWG

Department of Public Works
CLARK COUNTY
WASHINGTON
proud past, promising future

MANHOLE DETAILS

APPROVED
Peter Capen
COUNTY ENGINEER
01/01/04
DATE

STANDARD D1.5
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/06/02

1. 24" x 3-1/2" CAST IRON LOCKING FRAME & COVER
2. 2-1/2"x3-1/2"x1/4"x 35 7/8" GALVANIZED ANGLE IRON
3. 2-1/2"x2-1/2"x3/8" FRAME GALVANIZED ANGLE IRON
4. 2 EA. #4 TRASH BARS @ 8" O.C.
5. 1/2"x2-1/2" FLAT BAR GALVANIZED GRATE
6. 2 EA. BASE UNIT LIFT HOLES
7. 6" CURB AND 12" GUTTERS
8. STANDARD TYPE 1 BASE UNIT
9. PIPE KNOCKOUTS ALL FOUR SIDES.

NOTES

1. COMBINATION CURB INLET TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 & C890 UNLESS SHOWN ON PLANS OR NOTED IN STANDARD SPECIFICATIONS.
2. REINFORCING FOR INLET UNIT, 3 EA. #4 HORZONTAL BARS; REINFORCING FOR TOP UNIT, 2 EA. #3 HORZONTAL BARS; REINFORCING FOR INLET SLOPED BASE, 4x4 MESH.
3. ALL REBAR TO MEET ASTM A615 GRADE 60.
4. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQAURE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497. WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
5. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4,000.
6 PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
7. KNOCKOUTS OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS INLET WALL THICKNESS.
8. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES WITH MAX. DIAM. OF 17".
9. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
10. ANY PROTUDING ENDS OF PIPES SHALL BE TRIMMED FLUSH WITH THE INSIDE WALLS AND GROUTED TO THE SATISFACTION OF ENGINEER.
11. GRATE TO HAVE 1" DEPRESSION AT GUTTER INLET WITH GUTTER TO BE TAPERED DOWN TO INLET.
12. INSTALL REMOVABLE APWA TYPE 60A TRAP OR EQUAL, SEE STD. PLAN D2.1.
13. CONTRACTOR SHALL HAVE THE OPTION OF FURNISHING PRECAST OR CAST-IN-PLACE INLET STRUCTURES, UNLESS SPECIFIED.
14. SEE STD. PLAN 4.1 FOR BASIN GUTTER PAN DETAIL.

NO.	REVISIONS	DATE	BY

DWG: D3-0.DWG

Department of Public Works
CLARK COUNTY
WASHINGTON
proud past, promising future

STANDARD TYPE 1 COMBINATION CURB INLET

APPROVED
Peter Capen
COUNTY ENGINEER
01/01/04
DATE

STANDARD D3.0
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/06/02

NOTES

1. WELDING NOT PERMITTED
2. USE VANED GRATE PER STD. PLAN D4.4 WHERE LONGITUDINAL SLOPE EXCEEDS 4%.
3. WHEN BOLT DOWN GRATES ARE SPECIFIED, PROVIDE TWO SLOTS IN THE GRATE THAT ARE VERTICALLY ALIGNED WITH THE HOLES IN THE FRAME. LOCATION OF BOLT DOWN SLOTS VARIES AMONG DIFFERENT MANUFACTURERS.
4. REFER TO WSDOT STANDARD SPECIFICATION 9-05.15(2) FOR ADDITIONAL REQUIREMENTS.
5. FOR FRAME DETAIL, SEE STD. PLAN D4.2
6. THE THICKNESS OF THE GRATE SHALL NOT EXCEED 1-5/8".

NO.	REVISIONS	DATE	BY

DWG: D4-3.dwg

Department of Public Works
CLARK COUNTY
WASHINGTON
proud past, promising future

HERRINGBONE GRATE FOR CATCH BASIN

APPROVED
Peter Capen
COUNTY ENGINEER
01/01/04
DATE

STANDARD D4.3
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 01/07/03

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"It's the Law"
NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGNED	JM
DRAWN	BAK
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG:	DD1
SHEET	OF

STATE OF WASHINGTON
MICHAEL B. KERLINE
21148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE DETAILS I

proud past, promising future
CLARK COUNTY
WASHINGTON

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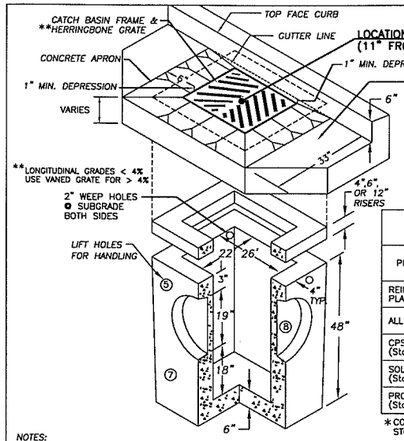


PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER
REINFORCED OR PLAIN CONCRETE	18"
ALL METAL PIPE	21"
CPSSP * (Std. Spec. 9-05.20	18"
SOLID WALL PVC (Std. Spec. 9-05.12(1)	21"
PROFILE WALL PVC (Std. Spec. 9-05.12(2)	21"

* CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES:

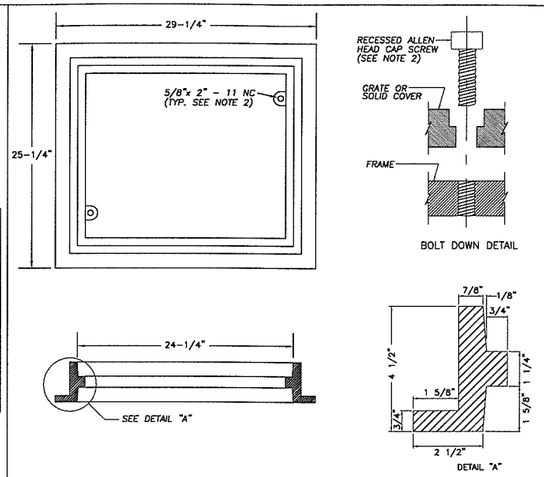
1. CURB INLET TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO) M 199) & C890 UNLESS SHOWN ON PLANS OR NOTED IN STANDARD SPECIFICATIONS.
2. REINFORCING FOR INLET UNIT, 3 EA. #4 HORIZONTAL BARS.
3. REINFORCING FOR TOP UNIT, 2 EA. #3 HORIZONTAL BARS.
4. ALL REBAR TO MEET ASTM A615 GRADE 60.
5. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497. WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
6. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4,000.
7. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
8. KNOCKOUTS OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS INLET WALL THICKNESS.
9. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES WITH MAX. DIAM. OF 20".
10. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
11. ANY PROTRUDING ENDS OF PIPES SHALL BE TRIMMED FLUSH WITH THE INSIDE WALLS AND GROUTED TO THE SATISFACTION OF ENGINEER.
12. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH WDOT STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
13. FRAME MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
14 INSTALL REMOVABLE APWA TYPE 60A TRAP OR EQUAL, SEE STD. PLAN D2.1.
15. CONTRACTOR SHALL HAVE THE OPTION OF FURNISHING PRECAST OR CAST-IN-PLACE INLET STRUCTURES, UNLESS SPECIFIED.

DWG: D4-0.DWG

NO.	REVISIONS	DATE	BY

Department of Public Works
CLARK COUNTY WASHINGTON
proud past, promising future

STANDARD CATCH BASIN TYPE 1
APPROVED
Peter Capell, COUNTY ENGINEER — 01/01/04 DATE
STANDARD D4.0
PLAN No.
DESIGNED SOI
DRAWN SOI
DATE 07/07/03



NOTES

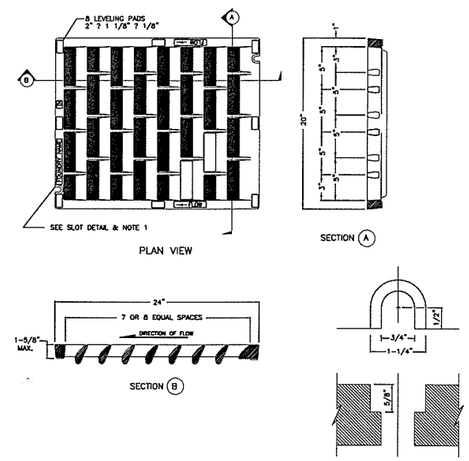
1. THIS FRAME IS DESIGNED TO ACCOMODATE 20"x 24" GRATES OR COVERS AS SHOWN ON STD. PLANS D4.3 AND D4.4.
2. WHEN BOLT DOWN GRATES OR COVERS ARE SPECIFIED, PROVIDE TWO HOLES IN THE FRAME THAT ARE VERTICALLY ALIGNED WITH THE GRATE OR COVER SLOTS. TAP EACH HOLE TO ACCEPT A 5/8"x 2" - 11 NC ALLEN HEAD CAP SCREW. LOCATION OF BOLT DOWN HOLES VARIES AMONG DIFFERENT MANUFACTURERS.
3. REFER TO WSDOT STANDARD SPECIFICATION 9-05.15(2) FOR ADDITIONAL REQUIREMENTS.
4. SEE WSDOT STD. SPEC. SECTION 7.05.

DWG: D4-2.dwg

NO.	REVISIONS	DATE	BY

Department of Public Works
CLARK COUNTY WASHINGTON
proud past, promising future

REVERSIBLE FRAME FOR CATCH BASIN
APPROVED
Peter Capell, COUNTY ENGINEER — 01/01/04 DATE
STANDARD D4.2
PLAN No.
DESIGNED SOI
DRAWN SOI
DATE 07/07/03



NOTES

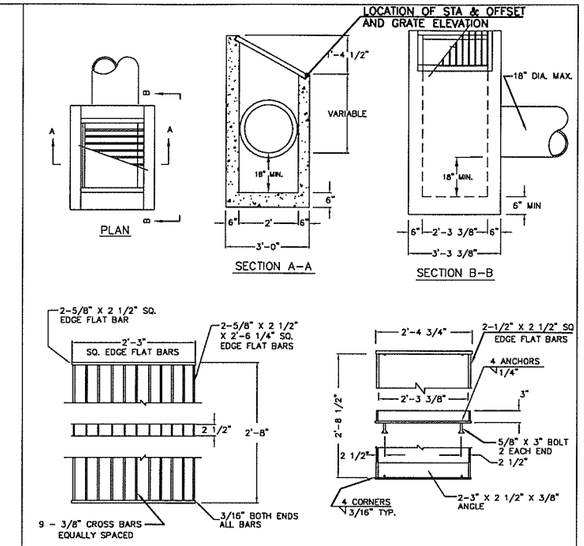
1. WELDING NOT PERMITTED
2. USE HERRINGBONE GRATE PER STD. PLAN D4.3 WHERE LONGITUDINAL SLOPE IS LESS THAN 4%.
3. WHEN BOLT DOWN GRATES ARE SPECIFIED, PROVIDE TWO SLOTS IN THE GRATE THAT ARE VERTICALLY ALIGNED WITH THE HOLES IN THE FRAME. LOCATION OF BOLT DOWN SLOTS VARIES AMONG DIFFERENT MANUFACTURERS.
4. REFER TO WSDOT STANDARD SPECIFICATION 9-05.15(2) FOR ADDITIONAL REQUIREMENTS.
5. FOR FRAME DETAIL, SEE STD. PLAN D4.2

DWG: D4-4.dwg

NO.	REVISIONS	DATE	BY

Department of Public Works
CLARK COUNTY WASHINGTON
proud past, promising future

VANE GRATE FOR CATCH BASIN
APPROVED
Peter Capell, COUNTY ENGINEER — 01/01/04 DATE
STANDARD D4.4
PLAN No.
DESIGNED SOI
DRAWN SOI
DATE 07/07/03



NOTES:

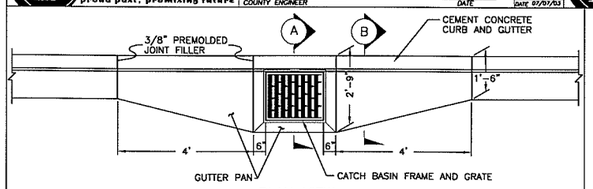
1. DITCH INLET CONSTRUCTION IN ACCORDANCE WITH ASTM C-478
2. CATCH BASIN, FRAME, AND GRATES SHALL BE FLAT BAR STEEL OR APPROVED EQUAL.
3. INSIDE FRAME DIMENSIONS: 2'-3 3/8"x 2'-8 1/2".
4. 3/8" CROSS BARS SHALL BE FLUSH WITH THE GRATE SURFACE AND MAY BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.

DWG: D6.DWG

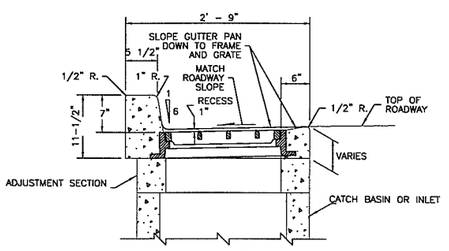
NO.	REVISIONS	DATE	BY

Department of Public Works
CLARK COUNTY WASHINGTON
proud past, promising future

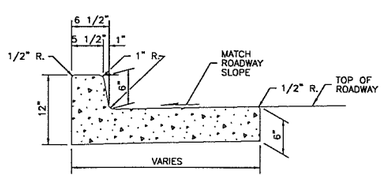
DITCH INLET
APPROVED
Peter Capell, COUNTY ENGINEER — 01/01/04 DATE
STANDARD D6
PLAN No.
DESIGNED SOI
DRAWN SOI
DATE 06/17/02



PLAN VIEW
CATCH BASIN GUTTER PAN



SECTION (A)



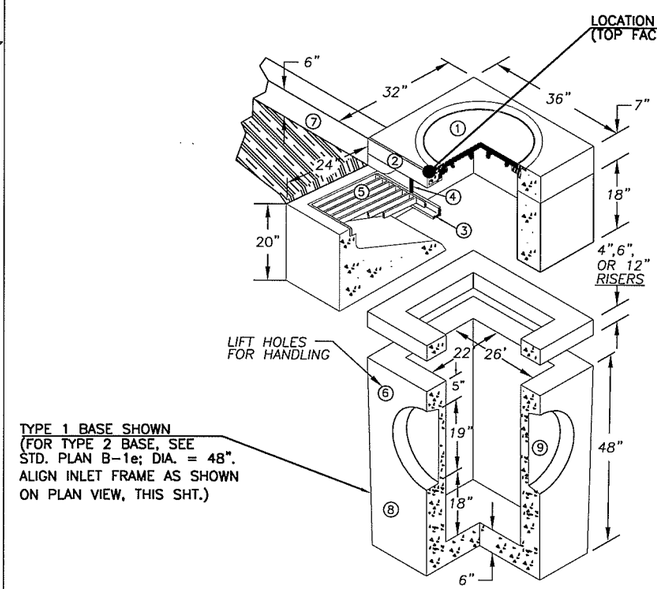
SECTION (B)

DWG: D4-1.DWG

NO.	REVISIONS	DATE	BY

Department of Public Works
CLARK COUNTY WASHINGTON
proud past, promising future

CATCH BASIN GUTTER PAN
APPROVED
Peter Capell, COUNTY ENGINEER — 01/01/04 DATE
STANDARD D4.1
PLAN No.
DESIGNED SOI
DRAWN SOI
DATE 07/07/03



ISOMETRIC VIEW

#	
1	24"ALUMINUM LOCKING FRAME & COVER
2	2 1/2"x3 1/2"x1/4"x 35 7/8" GALVANIZED ANGLE IRON
3	2"x2 1/2"x1/4"x33" GALVANIZED ANGLE IRON
4	2 EA. #4 TRASH BARS @12" O.C.
5	24 3/4"x 28 1/2" GALVANIZED GRATE
6	2 EA. BASE UNIT LIFT HOLES
7	6" CURB AND 18" GUTTERS
8	STANDARD TYPE 1 BASE UNIT
9	PIPE KNOCKOUTS ALL FOUR SIDES.

WEIGHT:

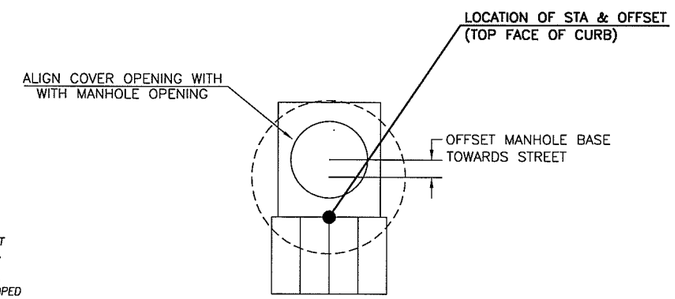
TOP WEIGHT 420 LB.

RISER WITH GRATE WEIGHT 1920 LB.

BASE WEIGHT 2200 LB.

NOTES:

1. REINFORCING FOR INLET UNIT 3 EA. #4 HORIZONTAL BARS.
2. REINFORCING FOR TOP UNIT 2 EA. #3 HORIZONTAL BARS
3. REINFORCING FOR INLET SLOPED BASE, 4x4 MESH
4. GUTTER IS TAPERED DOWN TO GRATE INLET
5. ALL CONCRETE IS 4,000 PSI MIN.
6. ALL REBAR MEETS ASTM A615 GRADE 60.



PLAN VIEW AND PLACEMENT DETAIL

TYPE 2 COMBINATION CURB INLET
NTS

DESIGNED	JM
DRAWN	BAK
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG:	DD2
SHEET	OF

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

MILANE WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER 21148 EXPIRES: JULY 2, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE DETAILS II

proud past, promising future
CLARK COUNTY WASHINGTON

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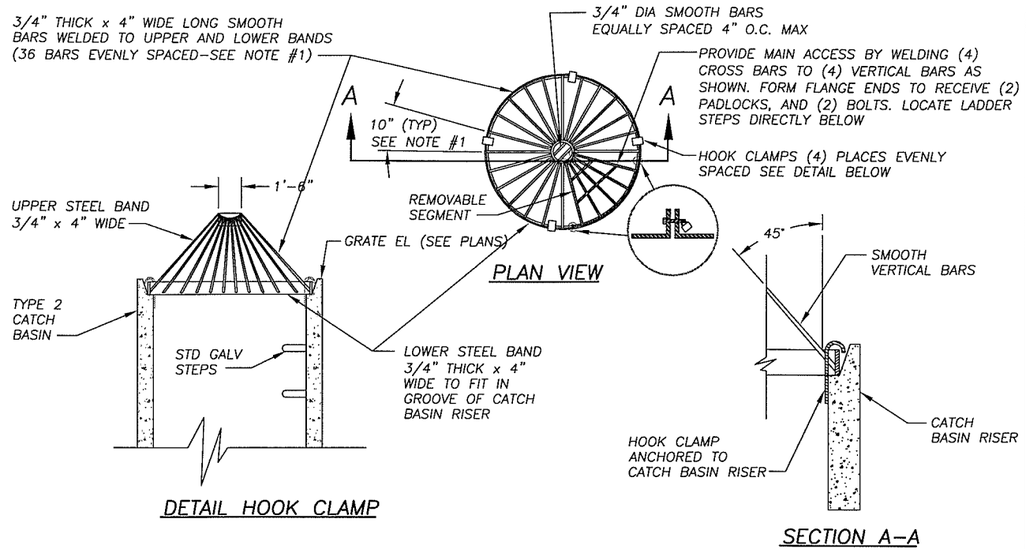
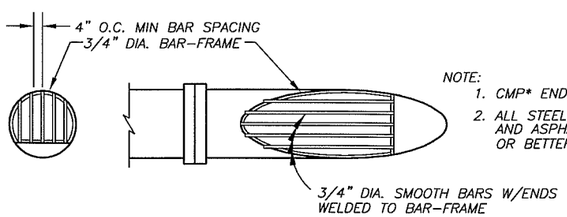


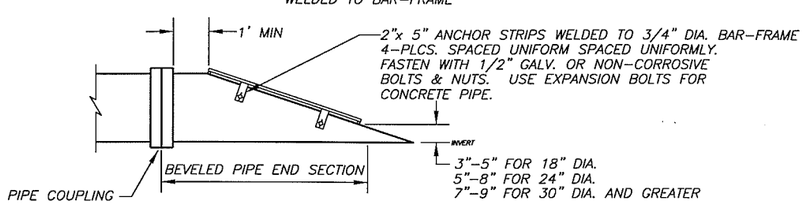
DROP INLET TRASH RACK

NTS

PRELIMINARY



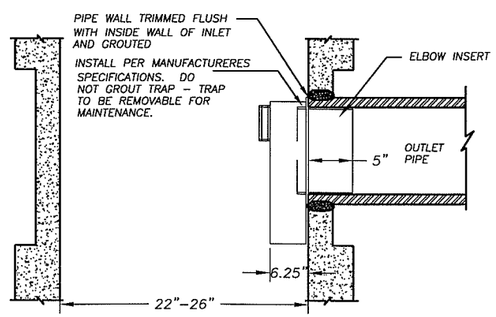
NOTE:
1. CMP* END–SECTION SHOWN;
2. ALL STEEL PARTS MUST BE GALVANIZED AND ASPHALT COATED (TREATMENT 1 OR BETTER).



DEBRIS RACK

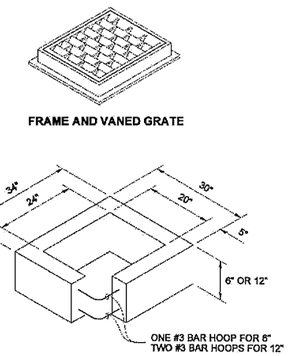
NTS

NOTE: FOR 12" DIP TRAP USE 12" * 90 DEG. DIP ELBOW



CATCH BASIN OUTLET PIPE TRAP

NTS



NOTES

1. AS AN ACCEPTABLE ALTERNATE TO REBAR, WIRE MESH HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WIRE MESH SHALL NOT BE PLACED IN KNOCKOUTS.
2. THE KNOCKOUT DIAMETER SHALL NOT BE GREATER THAN 20". KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM TO 2.5" MAXIMUM. PROVIDE A 1.5" MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR IN ACCORDANCE WITH STANDARD SPECIFICATION 9-04.3.
3. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT SHALL BE 5'.
4. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO ADJUSTMENT SECTION.
5. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.
6. OPENING SHALL BE MEASURED AT THE TOP OF THE PRECAST BASE SECTION.

PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPSSP * (STD. SPEC. 9-05.20)	12"
SOLID WALL PVC (STD. SPEC. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. 9-05.12(2))	15"

* CORRUGATED POLYETHYLENE STORM SEWER PIPE

MATTHEW J. WIDRIG STATE OF WASHINGTON 19598 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 1, 2003

CATCH BASIN TYPE 1

STANDARD PLAN B-1

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

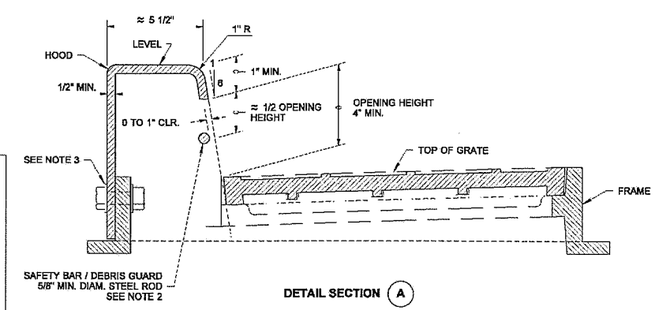
Harold J. Peterfeso 07-21-03

STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

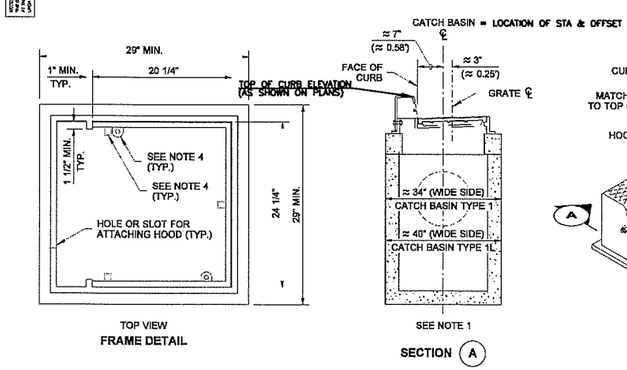
NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

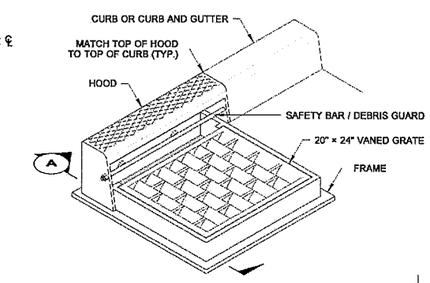
DRAWN BY: MARK SUJKA



NOTES

1. THE ASYMMETRY OF THE COMBINATION INLET SHALL BE CONSIDERED WHEN CALCULATING THE OFFSET DISTANCE FOR THE CATCH BASIN. SEE SECTION "A".
2. THE DIMENSIONS OF THE FRAME AND HOOD MAY VARY SLIGHTLY AMONG DIFFERENT MANUFACTURERS. THE FRAME MAY HAVE CAST FEATURES INTENDED TO SUPPORT A GRATE GUARD. HOOD UNITS SHALL MOUNT OUTSIDE OF THE FRAME. THE METHODS FOR FASTENING THE SAFETY BAR / DEBRIS GUARD ROD TO THE HOOD MAY VARY. THE HOOD MAY INCLUDE CASTING LUGS. THE TOP OF THE HOOD MAY BE CAST WITH A PATTERN.
3. ATTACH THE HOOD TO THE FRAME WITH TWO 3/4" × 2" HEX HEAD BOLTS, NUTS, AND OVERSIZE WASHERS. THE WASHERS SHALL BE USED ON THE SLOTTED SIDE, AND SHALL HAVE DIAMETERS ADEQUATE TO ASSURE FULL BEARING ACROSS THE SLOTS.
4. WHEN BOLT DOWN GRATES ARE SPECIFIED IN THE CONTRACT, PROVIDE TWO HOLES IN THE FRAME THAT ARE VERTICALLY ALIGNED WITH THE GRATE SLOTS. TAP EACH HOLE TO ACCEPT A 5/8" × - 11 NC × 2" ALLEN HEAD CAP SCREW. LOCATION OF BOLT DOWN HOLES VARIES AMONG DIFFERENT MANUFACTURERS. SEE "BOLT DOWN DETAIL", STANDARD PLAN B-2a.
5. ONLY DUCTILE IRON VANED GRATES SHALL BE USED. SEE STANDARD PLANS B-2b AND B-2c FOR GRATE DETAILS. REFER TO STANDARD SPECIFICATION 9-05.15(2) FOR ADDITIONAL REQUIREMENTS.
6. THIS PLAN IS INTENDED TO SHOW THE INSTALLATION DETAILS OF A MANUFACTURED PRODUCT. IT IS NOT THE INTENT OF THIS PLAN TO SHOW THE SPECIFIC DETAILS NECESSARY TO FABRICATE THE CASTINGS SHOWN ON THIS DRAWING.





MATTHEW J. WIDRIG STATE OF WASHINGTON 19598 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 1, 2005

COMBINATION INLET
(WDOT STANDARD)
STANDARD PLAN B-2e

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Harold J. Peterfeso 02-25-04

STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

DESIGNED	JM
DRAWN	KB
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG:	DD3
SHEET	OF

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

STATE OF WASHINGTON MATTHEW J. WIDRIG 19598 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 1, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE DETAILS III

proud past, promising future

CLARK COUNTY WASHINGTON

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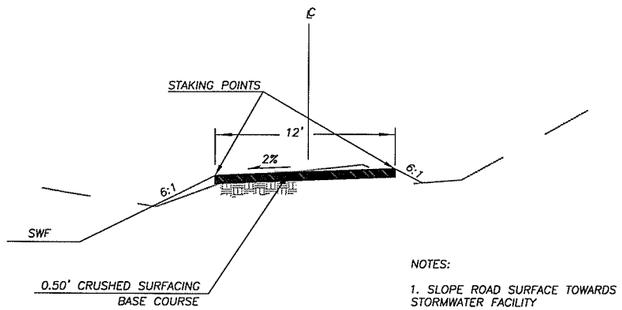
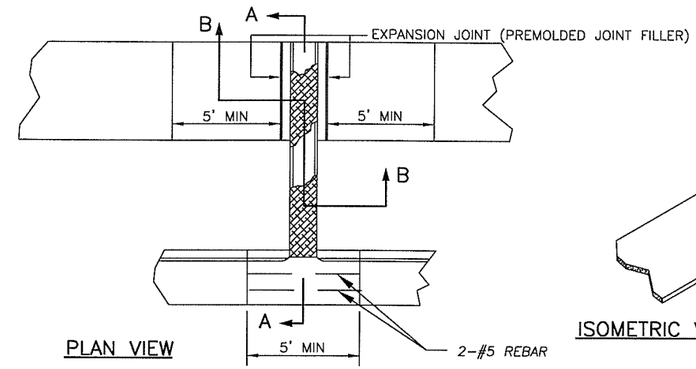


NOTES:

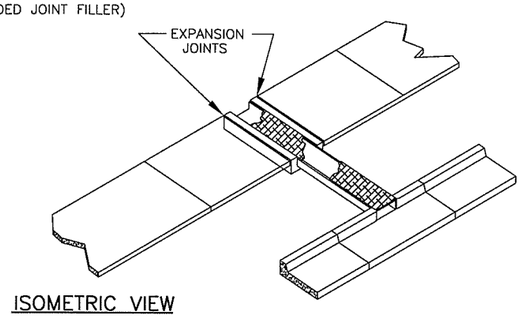
1. SLOPE ROAD SURFACE TOWARDS STORMWATER FACILITY
2. TYPICAL SLOPES SHOWN; SEE GRADING AND STAKING PLANS FOR DETAILED INFORMATION

TYPICAL MAINTENANCE ROAD SECTION

N.T.S.



PLAN VIEW



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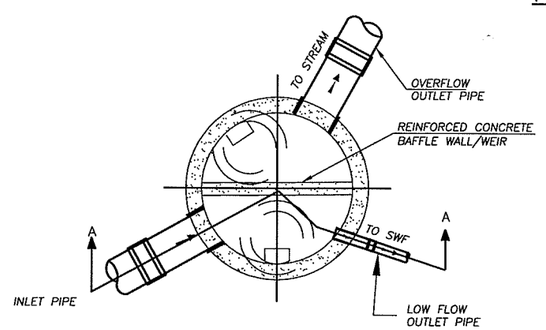
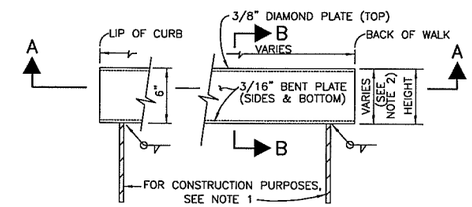
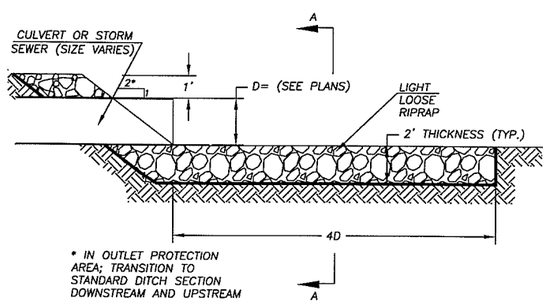


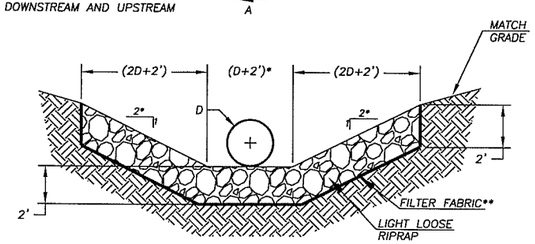
PLAN

N.T.S



SIDEWALK CHASE ELEVATION



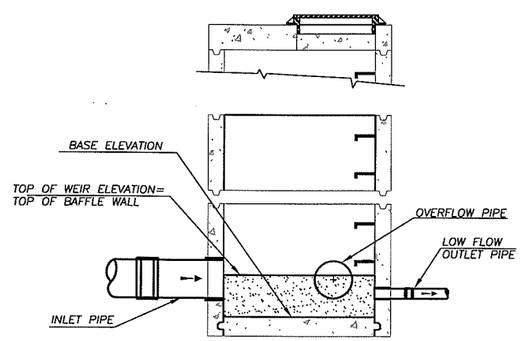


SECTION A-A

** CONSTRUCTION GEOTEXTILE FOR SEPARATION OR SOIL STABILIZATION (WSDOT 9-33, TABLE 3)

OUTFALL DISCHARGE PROTECTION

N.T.S.



SECTION A-A

N.T.S

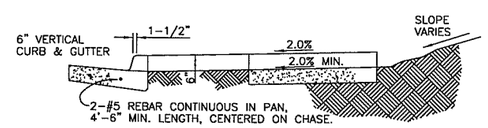
NOTES:
1. SEE WDOT STANDARD PLAN B-3A. NO ORIFICES OR ELBOWS REQUIRED IN BAFFLE WALL.
2. DUAL MANHOLE OPENINGS REQUIRED.

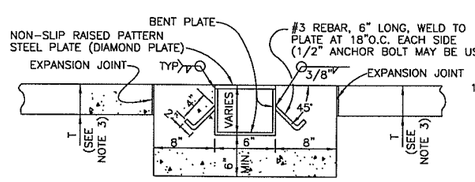
MHE1 (FLOW SPLITTER) DETAIL

(Modified Catch Basin Type 2)

SECTION A-A

FLOW TO GUTTER





SECTION B-B

NOTES

1. 18"-#4 REBAR: WELD ONE BAR NEAR EACH END OF TUBE; SUPPLY AT LEAST TWO BARS PER TUBE, MORE IF CONTRACTOR DEEMS APPROPRIATE. REBAR IS USED TO SUPPORT AND ALIGN TUBE UNTIL CONCRETE IS PLACED.
2. HEIGHT OF SIDEWALK CHASE SHALL MATCH CURB HEIGHT, I.E., HEIGHT FROM FLOWLINE TO TOP OF CURB.
3. T = THICKNESS OF WALK.
4. ALL STEEL SHALL BE GALVANIZED

SIDEWALK CHASE

PRELIMINARY

DESIGNED	JM
DRAWN	KB
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG:	DD4
SHEET	OF

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STATE OF WASHINGTON MILLIE RODGERS 21148 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE DETAILS IV

proud past, promising future
CLARK COUNTY WASHINGTON

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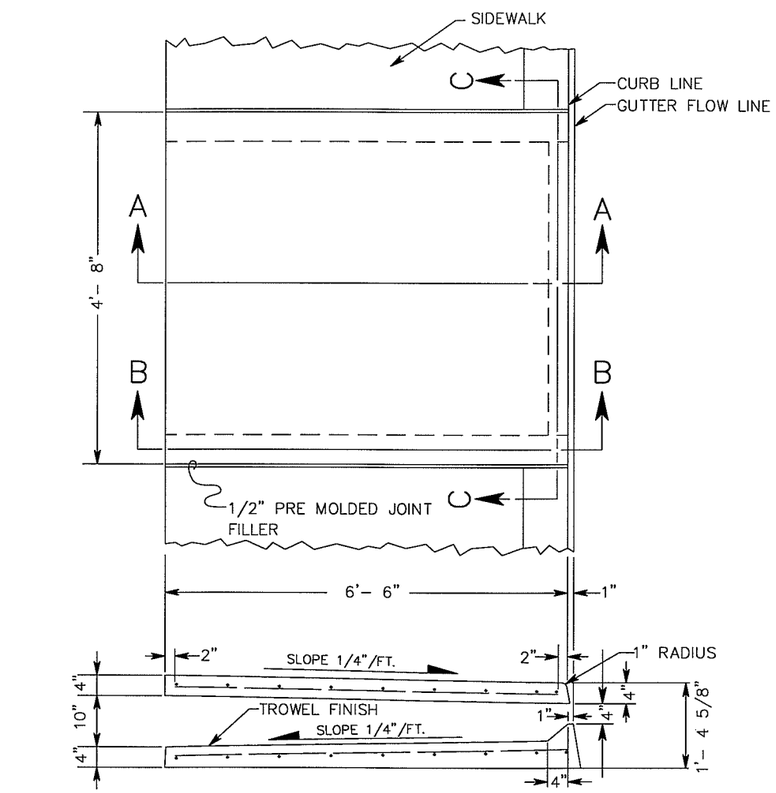
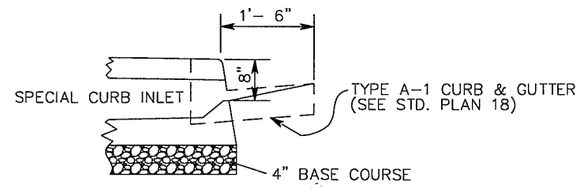
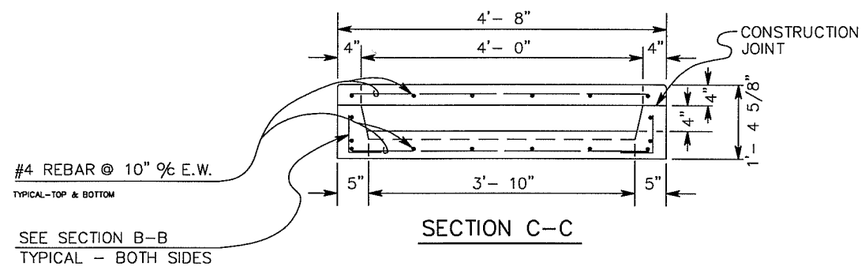


SECTION A-A

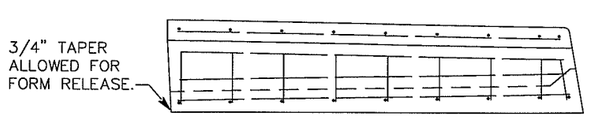


GENERAL NOTES

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.

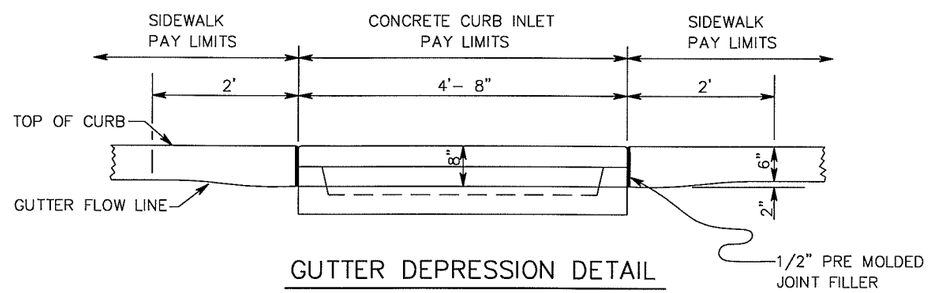


SECTION C-C

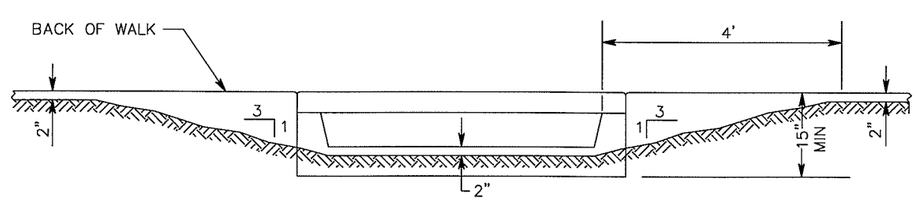


SECTION B-B
REBAR PLACEMENT

SPECIAL CURB INLET



GUTTER DEPRESSION DETAIL



OUTLET SWALE GRADING DETAIL

SPECIAL CURB INLET AND OUTLET BEHIND WALK TO SWALE

PRELIMINARY

DESIGNED	JM
DRAWN	KB
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG:	DD5
SHEET	OF

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STATE OF WASHINGTON MILNE 31148 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS ROAD (NE 50TH TO NE 72ND)
DRAINAGE DETAILS V

proud past, promising future
CLARK COUNTY WASHINGTON

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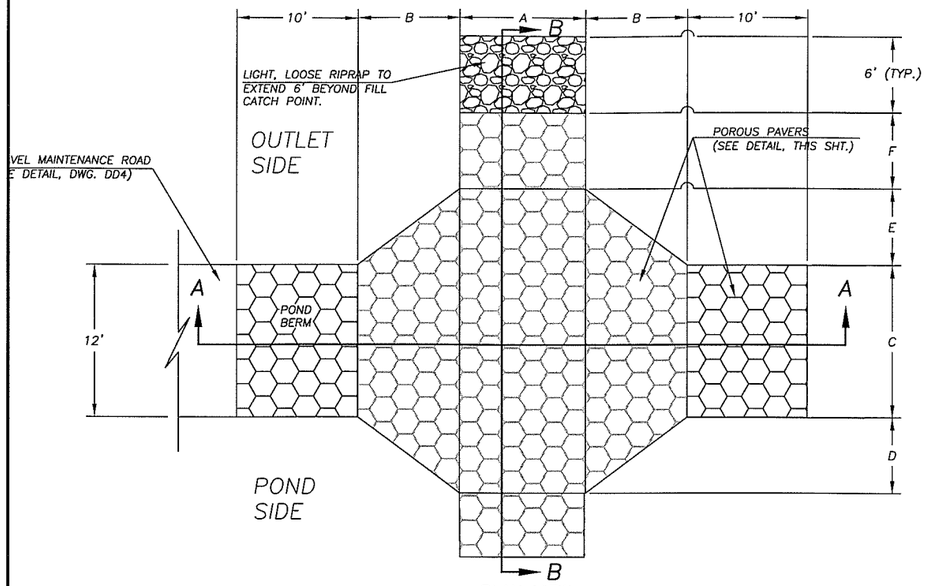
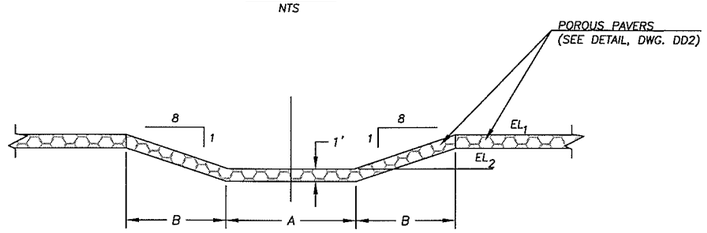
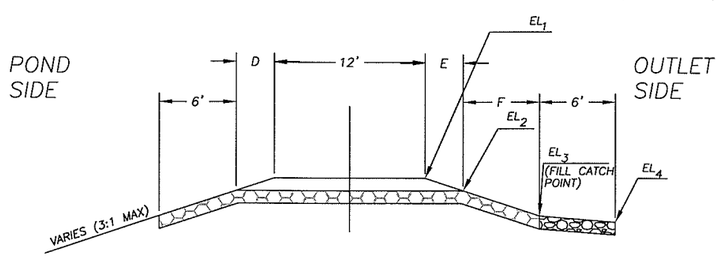


PLAN VIEW
NTS



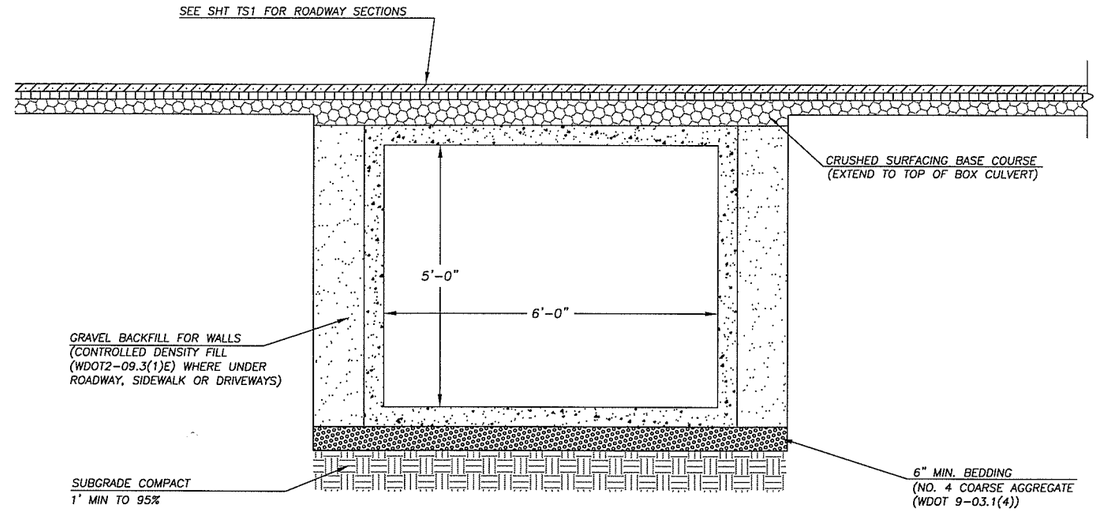
SECTION A–A
NTS



SECTION B–B
NTS

LOCATION	A	B	C	D	E	F	EL_1	EL_2	EL_3	EL_4
WMA3 (NORTH END)	10'	20'	12'	15'	15'	15'	190.00	187.50	187.0_	186.5_

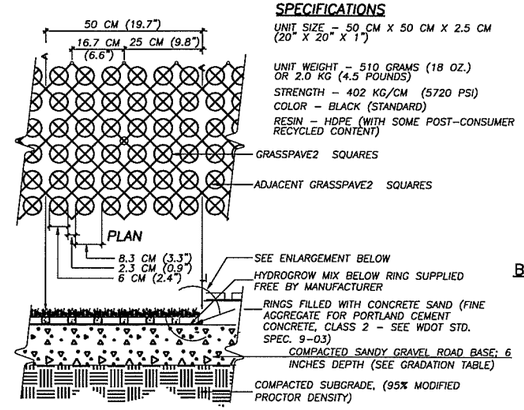
OVERFLOW WEIR DETAILS



NOTES:

1. CONTRACTOR SHALL FURNISH ALL SOILS INFORMATION NECESSARY, COMPLETE STRUCTURAL DESIGN AND SUBMIT DETAILED SHOP DRAWINGS FOR ENGINEER'S REVIEW AND APPROVAL. BOTH PRE-CAST AND CAST-IN-PLACE DESIGNS ARE ACCEPTABLE, SUBJECT TO REVIEW AND APPROVAL.
2. ALL REINFORCED CONCRETE DESIGN SHALL BE TO WSDOT DESIGN MANUAL M 22-01. DESIGN SHALL BE H20 LOADING TO ASTM850 (CHECK WITH STRUCTURAL)
3. APPROXIMATE DEPTHS OF COVER OVER THE CENTERLINE OF THE BOX CULVERT ARE SHOWN ON THE PLAN PROFILES. THE CONTRACTOR SHALL COMPUTE MINIMUM DEPTHS OF COVER FOR DESIGN PURPOSES USING THE DETAILED GEOMETRIC INFORMATION PROVIDED ON THE ROADWAY PROFILE SHEETS AND THE TYPICAL SECTIONS.
4. PAYMENT SHALL BE BY LINEAL FOOT OF BOX CULVERT INSTALLED. ALL INVESTIGATION, DESIGN, CONCRETE, REINFORCING, BEDDING, BACKFILL, MANHOLES, BLOCKOUTS, BULKHEADS AND ALL OTHER ITEMS ARE INCIDENTAL TO THIS UNIT PRICE.

REINFORCED CONCRETE BOX CULVERT (DESIGN–BUILD)
N.T.S.



SECTION

SPECIFICATIONS

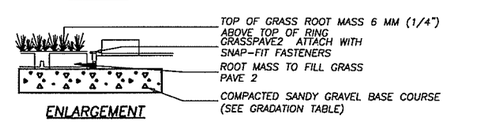
UNIT SIZE – 50 CM X 50 CM X 2.5 CM (20" X 20" X 1")

UNIT WEIGHT – 510 GRAMS (18 OZ.) OR 2.0 KG (4.5 POUNDS)

STRENGTH – 402 KG/CM (5720 PSI)

COLOR – BLACK (STANDARD)

RESIN – HDPE (WITH SOME POST-CONSUMER RECYCLED CONTENT)



ENLARGEMENT

BASE COURSE GRADATION

SEIVE SIZE	% PASSING
3/4"	72"
3/8"	24"
#4 SCREEN	24"
#40 SCREEN	256.07
#200 SCREEN	258.07

NOTES

1. POROUS PAVERS SHALL BE "GRASSPAVE 2" OR APPROVED EQUAL ("GRASSPAVE" SHOWN)
2. INSTALL PER MANUFACTURERS INSTRUCTIONS AND AS DIRECTED BY ENGINEER.
3. GRASS MIX AS FOR STORMWATER FACILITY
4. PROVISION & INSTALLATION OF ALL MATERIALS INCLUDING BASE COURSE INCLUDED IN COST FOR POROUS PAVER BID ITMES.

PRELIMINARY

POROUS PAVER DETAIL
NOT TO SCALE

DESIGNED JM
DRAWN BK
CRP 301422
HOR. NA
VERT. NA
DATE 11/29/04
DWG: DD6
SHEET OF

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

STATE OF WASHINGTON JOHN MILLINE 31146 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

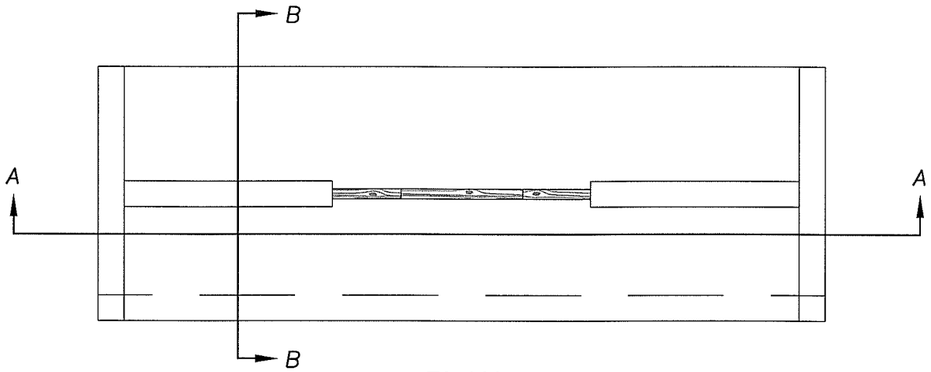
ST JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE DETAILS VI

proud past, promising future
CLARK COUNTY WASHINGTON

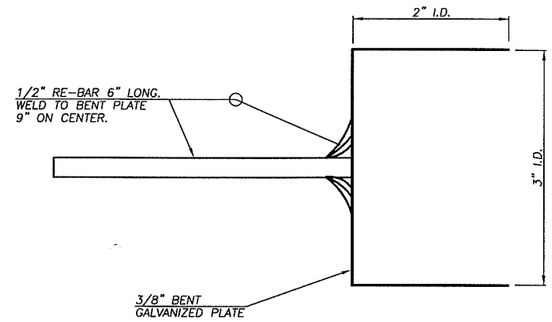
N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\DD6.dwg, 11/23/2004 1:09:08 PM, kerlinr

REINFORCED CONCRETE COMPOUND WEIR STRUCTURE

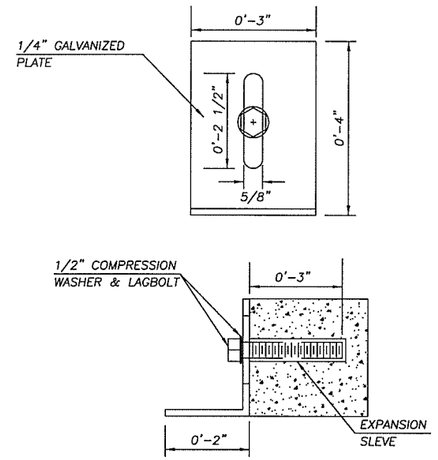
N.T.S.



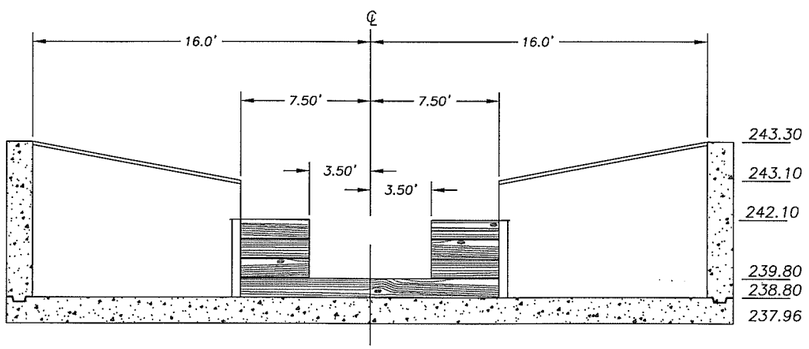
PLAN
NTS



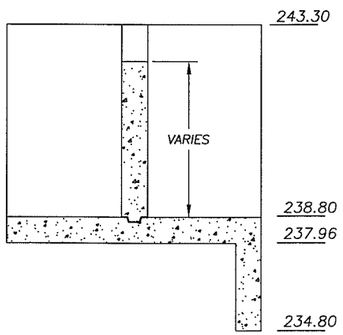
STOPLOG GUIDE
NTS



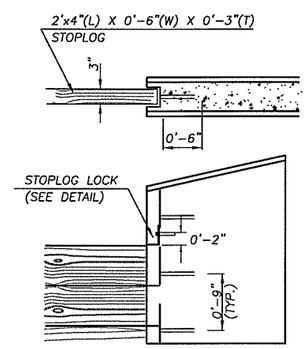
STOPLOG LOCK
NTS



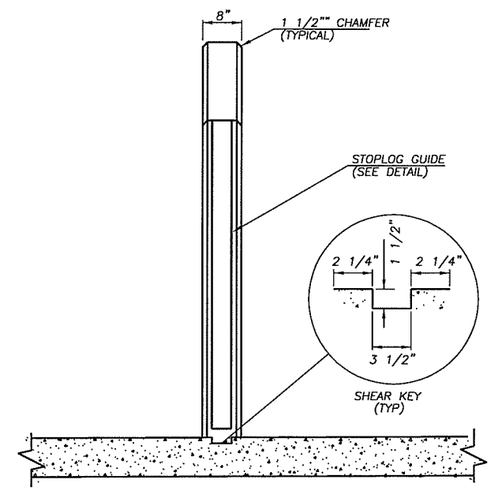
SECTION A-A
NTS



SECTION B-B
NTS



STOPLOG GUIDE
NTS



SECTION
NTS

CONSTRUCTION NOTES:

1. STRUCTURAL STEEL NOT SHOWN (SEE DWG). DD8
2. CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS FOR ENGINEER'S REVIEW AND APPROVAL.
3. PROVIDE SHEAR KEY DURING STAGED CONSTRUCTION TO PROVIDE LATERAL SUPPORT FOR WALLS
4. WOOD STOPLOG SHOULD BE CEDAR AND FREE OF KNOTS

PRELIMINARY

DESIGNED	JM
DRAWN	JM/RRK
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG.	DD7
SHEET	OF

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

STEVEN W. MILNE STATE OF WASHINGTON 37168 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE DETAILS VII

proud past, promising future
CLARK COUNTY WASHINGTON

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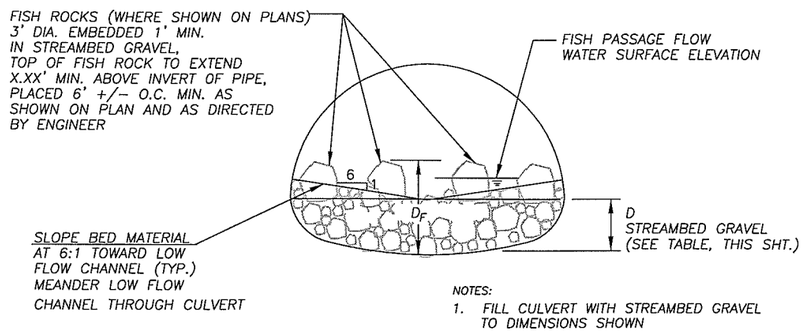
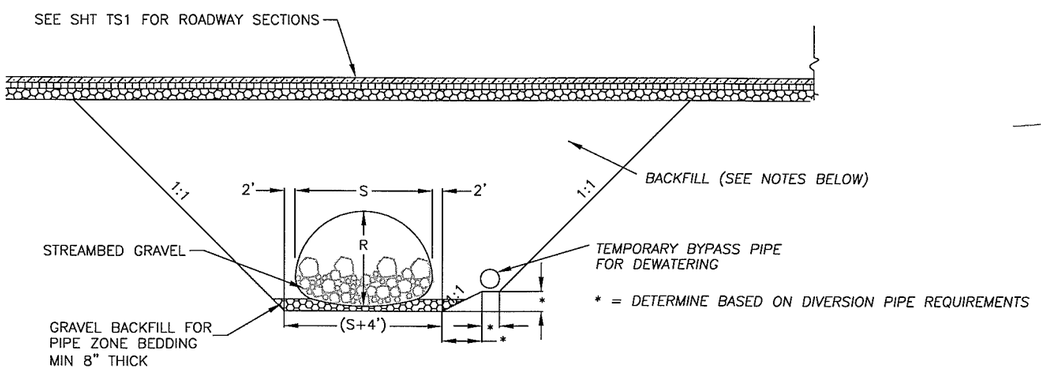


NOTES:

1. FILL CULVERT WITH STREAMBED GRAVEL TO DIMENSIONS SHOWN

CULVERT CROSS SECTION

N.T.S.



CULVERT TRENCH DETAIL

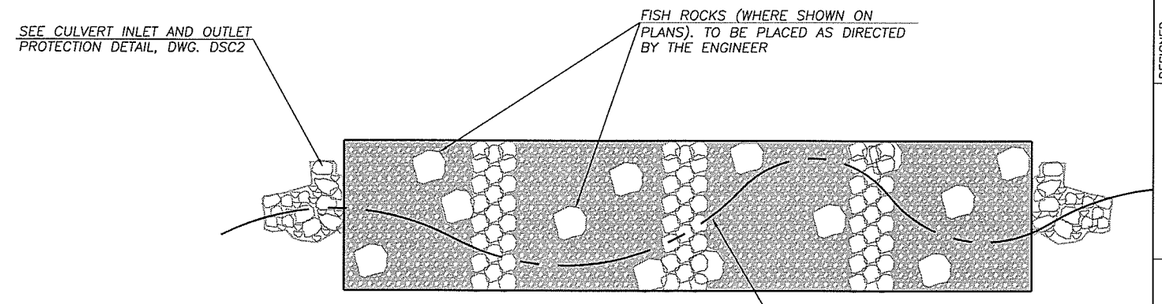
N.T.S.

NOTES:

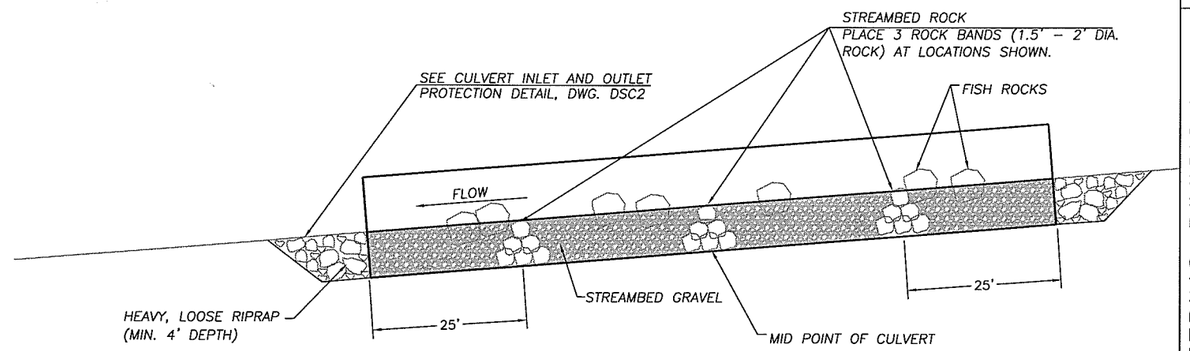
1. FOR STRUCTURAL PLATE PIPE ARCH, BACKFILL TO BE IMPORTED, CLEAN, WELL– GRADED GRANULAR MATERIAL (AASHTO M 145 FOR SOIL CLASSIFICATION A–1, A–2 OR A–3)
2. PIPE INSTALLATION PER MANUFACTURER'S SPECIFICATIONS. CONTACT PIPE MANUFACTURER TO PROVIDE ON–SITE ASSISTANCE PRIOR TO ASSEMBLY.
3. BACKFILL SHALL BE PLACED SYMMETRICALLY ON EACH SIDE OF THE STRUCTURE IN 6" TO 8" LIFTS.
4. PLACEMENT, BACKFILL AND COMPACTION TO BE AS DIRECTED BY ENGINEER.
5. ALL PAVING INCLUDED IN PAVEMENT BID ITEMS
6. ALL BEDDING, BACKFILL AND INSTALLATION INCLUDED IN BID ITEM FOR PIPE. FILL INSIDE PIPE PAID UNDER SEPARATE BID ITEMS.

CULVERT LOCATION	STRUCTURE TYPE	S	R	D	D_F
LALONDE CREEK	BOX CULVERT	6'–0"	5'–0"	1.5'	N.A.
CURTIN CREEK	STRUCTURAL PLATE PIPE ARCH	6'–1"	4'–7"	2.29'	N.A.

CULVERT DIMENSIONS



PLAN



PROFILE

TYPICAL CULVERT LAYOUT

N.T.S.

LALONDE CREEK	
Diameter (in)	Percent Finer
10	100
5	85–95
2	65–75
1/4	30–40
0.03	10–15

1. STREAMBED GRAVEL TO BE WELL–GRADED GRAVEL PIT MATERIAL. QUARRIED, ANGULAR MATERIAL IS NOT ACCEPTABLE.
2. STREAMBED GRAVEL TO BE TESTED AND GRADATION CONFIRMED AT GRAVEL PIT PRIOR TO DELIVERY TO SITE.

GRADATION FOR STREAMBED GRAVEL

PRELIMINARY

DESIGNED JM
DRAWN BK
CRP 301422
HOR. NA
VERT. NA
DATE 11/29/04
DWG: DSC1
SHEET OF

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

STATE OF WASHINGTON JOHN M. LIVINGSTON 37148 REGISTERED PROFESSIONAL ENGINEER
EXPIRES AUGUST 17, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS RD (NE 50TH TO NE 72ND)
STREAM CROSSING DETAILS I

proud past, promising future
CLARK COUNTY WASHINGTON

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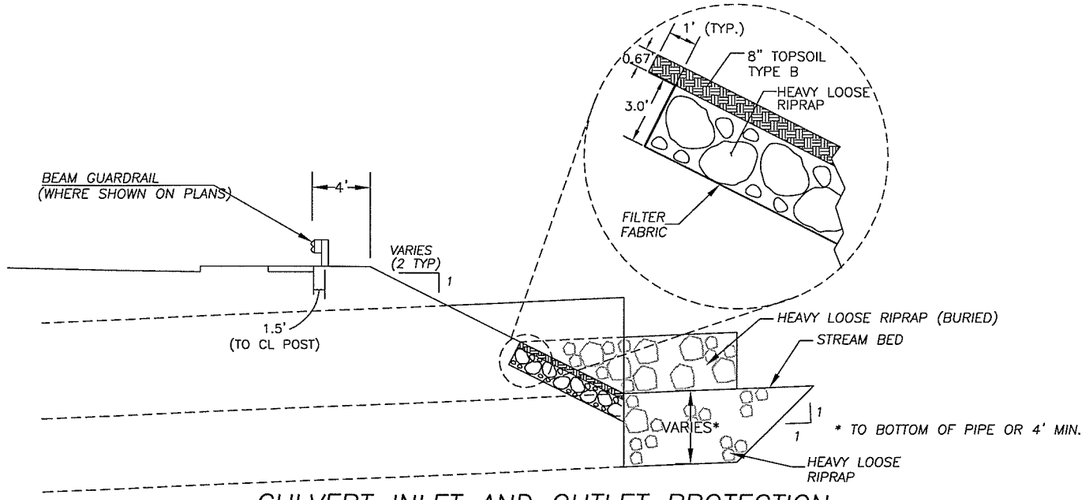
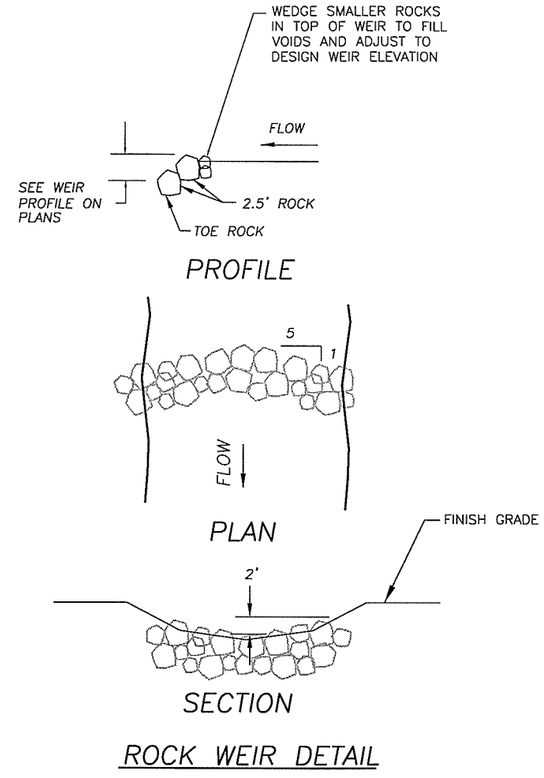


CULVERT INLET AND OUTLET PROTECTION

N.T.S.

NOTES:
1. SEE PLAN AND PROFILE SHEETS FOR DETAILED LAYOUT AND ELEVATION INFORMATION.
2. FILTER FABRIC SHALL BE CONSTRUCTION GEOTEXTILE FOR SEPARATION OR SOIL STABILIZATION TO WDOT 9-33 (TABLE-3). INSTALL LINER PER MANUFACTURER'S SPECIFICATIONS.
3. ALL COSTS FOR 8" TOPSOIL TYPE B INCLUDED IN UNIT COST FOR HEAVY LOOSE RIPRAP (BURIED).
4. FOR BEAM GUARDRAIL, SEE WSDOT STD. PLAN C-1.
5. WHERE DRIVEN BEAM MAY IMPACT CULVERT, PROVIDE 12'-6" SPAN PLACEMENT PER WDOT STD PLAN C-2K.



ROCK WEIR DETAIL

N.T.S.

PRELIMINARY

DESIGNED	JM
DRAWN	BK
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG.	DSC2
SHEET	OF

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

STATE OF WASHINGTON MILNE 36035 REGISTERED PROFESSIONAL ENGINEER EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST JOHNS RD (NE 50TH TO NE 72ND)
STREAM CROSSING DETAILS II

proud past, promising future
CLARK COUNTY WASHINGTON

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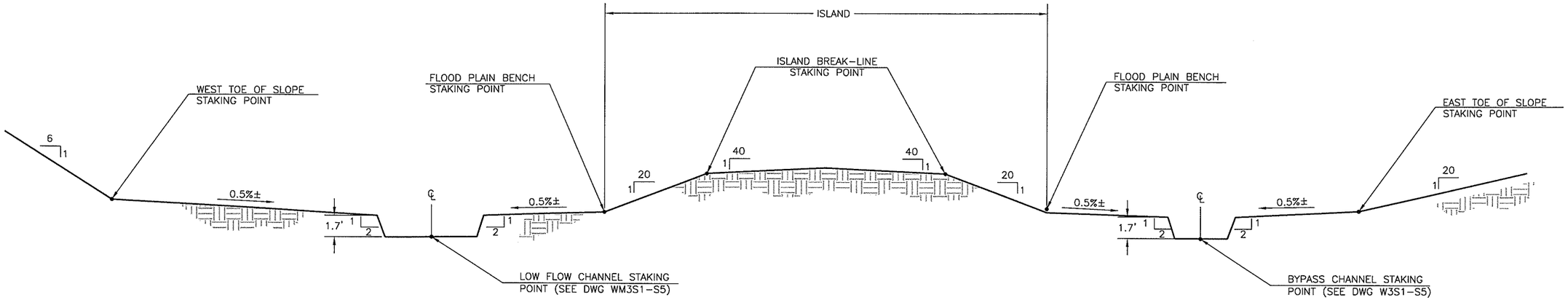
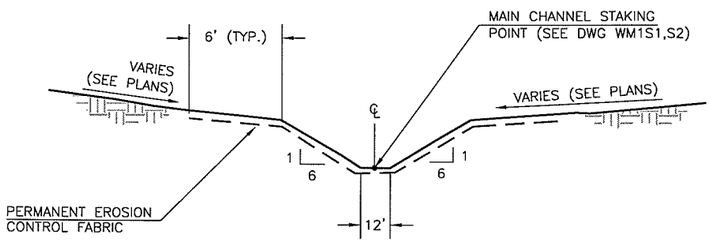


FLOOD PLAIN BENCH

N.T.S.

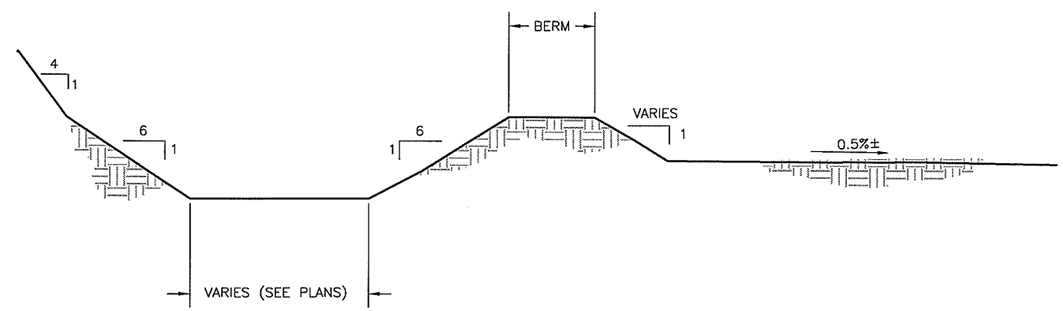
NOTE: TYPICAL SLOPES SHOWN, SEE GRADING AND STAKING PLANS FOR DETAILED SLOPE INFORMATION.



SECTION 1: MAIN CHANNEL

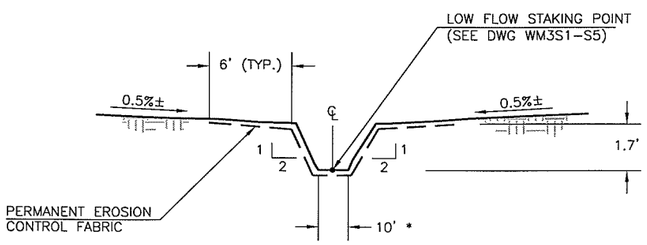
WETLAND MITIGATION AREA #1

N.T.S.



POND

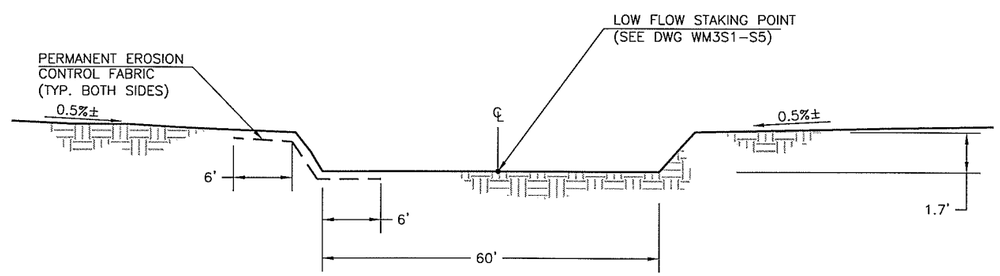
N.T.S.



* 10' WIDTH (LOW FLOW CHANNEL #1,2,4)
4' WIDTH (BYPASS CHANNEL #1)

SECTION 2: LOW FLOW CHANNEL

N.T.S.



* 10' WIDTH (LOW FLOW CHANNEL #1,2,4)
4' WIDTH (BYPASS CHANNEL #1)

SECTION 2: WIDENED LOW FLOW CHANNEL

LOW FLOW CHANNEL #3, BYPASS CHANNEL #2)

N.T.S.

DESIGNED	JM
DRAWN	RK
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG:	DWM1
SHEET	OF

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

LOREN E. MILNE STATE OF WASHINGTON 17148 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
WETLAND MITIGATION AREAS; TYPICAL SECTIONS

proud past, promising future
CLARK COUNTY WASHINGTON

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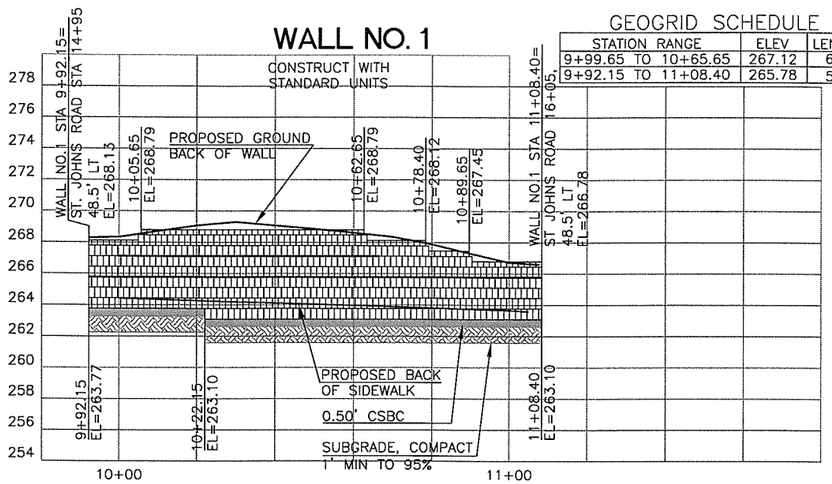
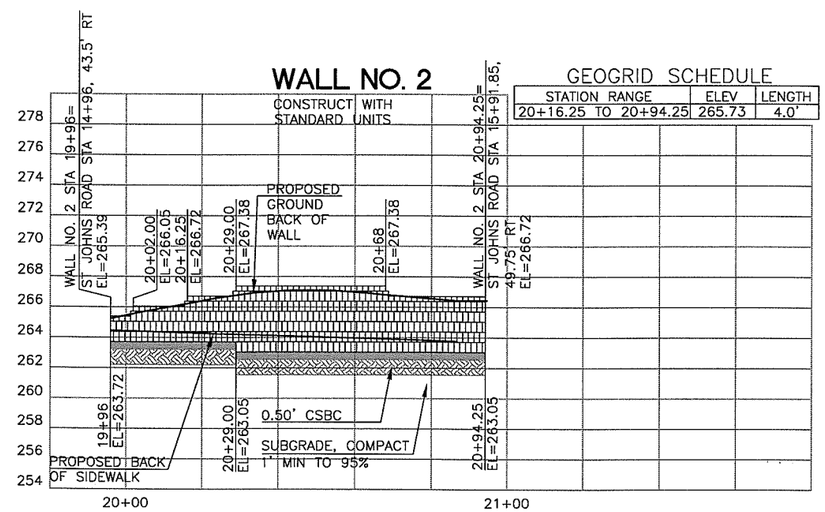


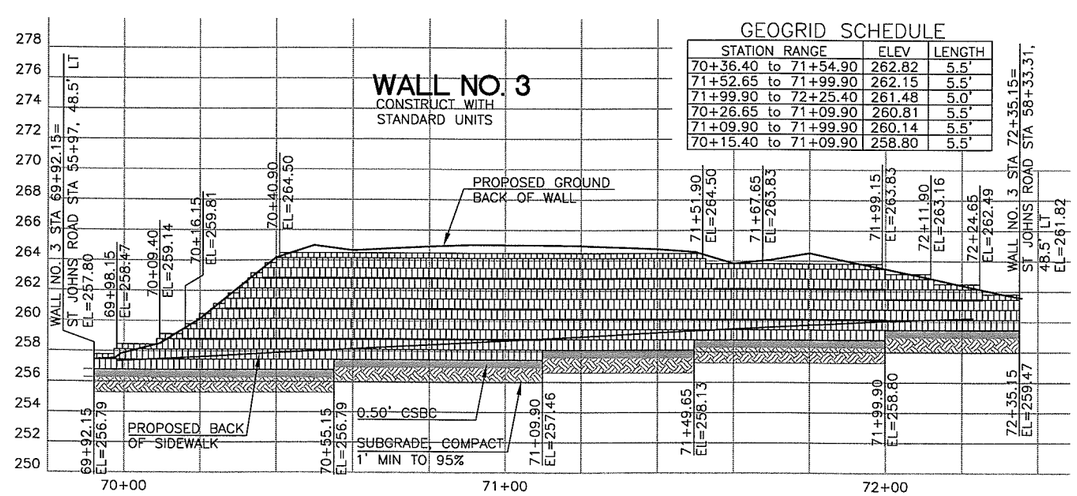
GEOGRID SCHEDULE

STATION RANGE	ELEV	LENGTH
9+99.65 TO 10+65.65	267.12	6.0'
9+92.15 TO 11+08.40	265.78	5.5'



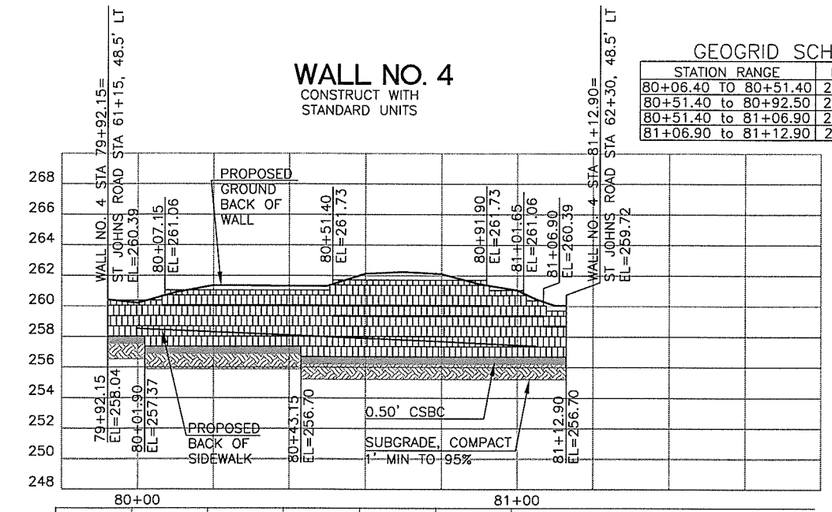
GEOGRID SCHEDULE

STATION RANGE	ELEV	LENGTH
20+16.25 TO 20+94.25	265.73	4.0'



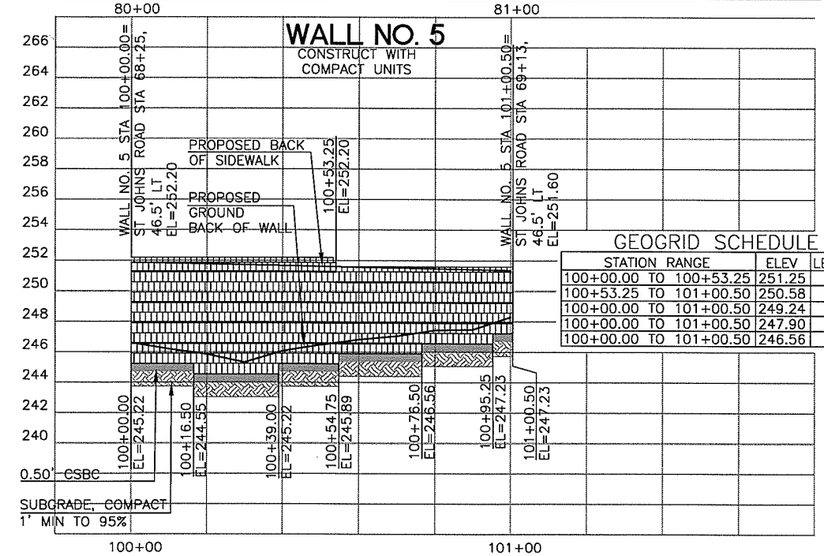
GEOGRID SCHEDULE

STATION RANGE	ELEV	LENGTH
70+36.40 to 71+54.90	262.82	5.5'
71+52.65 to 71+99.90	262.15	5.5'
71+99.90 to 72+25.40	261.48	5.0'
70+26.65 to 71+09.90	260.81	5.5'
71+09.90 to 71+99.90	260.14	5.5'
70+15.40 to 71+09.90	258.80	5.5'



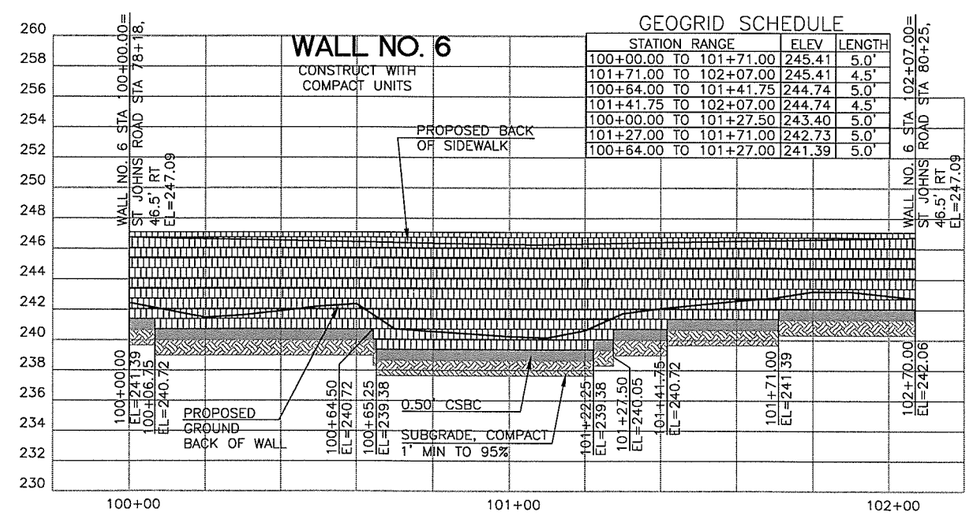
GEOGRID SCHEDULE

STATION RANGE	ELEV	LENGTH
80+06.40 TO 80+51.40	260.05	4.5'
80+51.40 to 80+92.50	260.05	5.5'
80+51.40 to 81+06.90	259.38	5.5'
81+06.90 to 81+12.90	258.71	4.0'



GEOGRID SCHEDULE

STATION RANGE	ELEV	LENGTH
100+00.00 TO 100+53.25	251.25	6.5'
100+53.25 TO 101+00.50	250.58	5.0'
100+00.00 TO 101+00.50	249.24	5.0'
100+00.00 TO 101+00.50	247.90	5.0'
100+00.00 TO 101+00.50	246.56	4.0'



GEOGRID SCHEDULE

STATION RANGE	ELEV	LENGTH
100+00.00 TO 101+71.00	245.41	5.0'
101+71.00 TO 102+07.00	245.41	4.5'
100+64.00 TO 101+41.75	244.74	5.0'
101+41.75 TO 102+07.00	244.74	4.5'
100+00.00 TO 101+27.50	243.40	5.0'
101+27.00 TO 101+71.00	242.73	5.0'
100+64.00 TO 101+27.00	241.39	5.0'

DESIGNED MME
DRAWN BAK
CRP 301422
HOR. 1"=20'
VERT. 1"=5'
DATE 3/29/04
DWG: W01
SHEET OF

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

STATE OF WASHINGTON MICHAEL M. EMICK 19989 REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
RETAINING WALLS

proud past, promising future
CLARK COUNTY WASHINGTON

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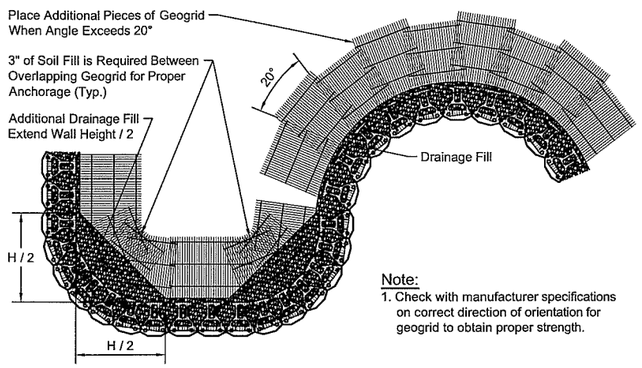


Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

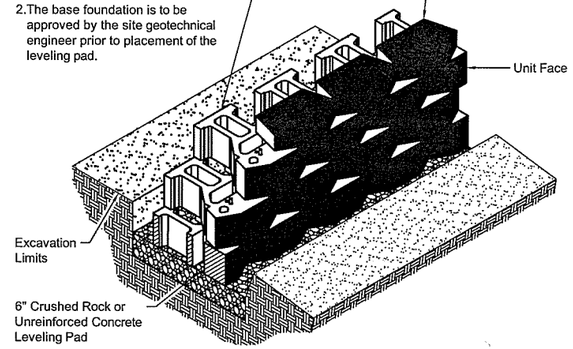
Geogrid Installation on Curves

Base Leveling Pad Notes:

1. The leveling pad is to be constructed of crushed stone or 2,000 psi± unreinforced concrete
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

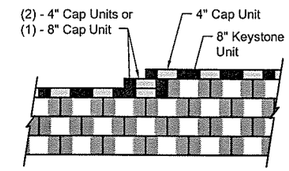
Standard Unit	
Width:	18"
*Depth:	21 1/2"
Height:	8"
*Weight:	115 lbs

Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	45 lbs



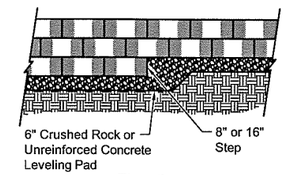
Standard Unit/Base Pad Isometric Section View

* Dimensions & Weight May Vary by Region



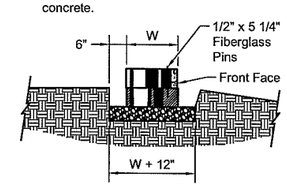
Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps



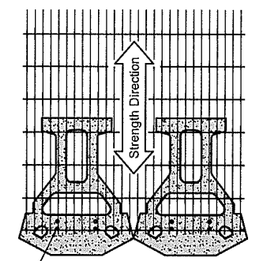
Elevation

Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.



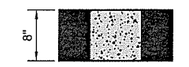
Section

Leveling Pad Detail

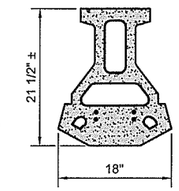


Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection



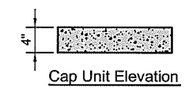
Standard Elevation



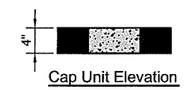
Standard Plan

Standard Unit

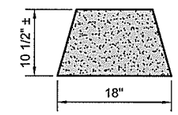
* Dimensions May Vary by Region



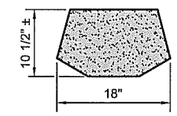
Cap Unit Elevation



Cap Unit Elevation



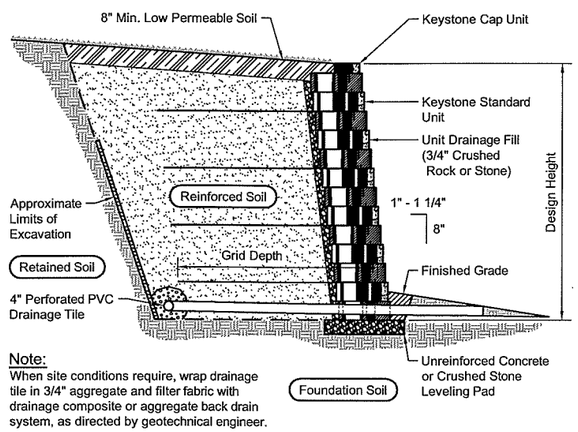
Cap Unit Plan



Cap Unit Plan

Universal
Cap Unit Option
* Dimensions & Availability Will Vary by Region

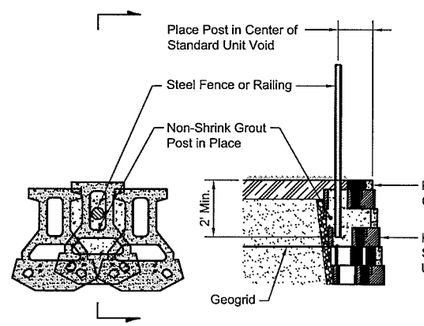
3-Plane Split
Cap Unit Option
* Dimensions & Availability Will Vary by Region



Note:
When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.

Typical Reinforced Wall Section

Standard Unit - 1" Setback



Fence Plan Detail

Fence SectionDetail

Standard Unit - 1" Setback

DESIGNED	ME
DRAWN	KB
CRP	301422
HOR.	NA
VERT.	NA
DATE	11/29/04
DWG:	W02
SHEET	OF

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

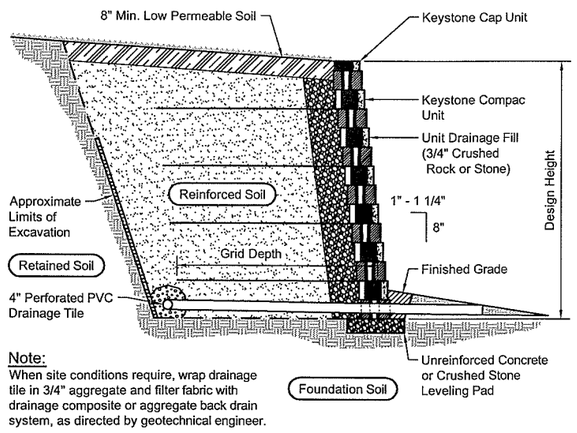
STATE OF WASHINGTON MICHAEL M. EMICK 36030 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
RETAINING WALL DETAILS
WALLS NO. 1, 2, 3 & 4

proud past, promising future
CLARK COUNTY WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\W02.dwg, 11/24/2004 11:00:37 AM, kerlinr



Note:
When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.

Typical Reinforced Wall Section

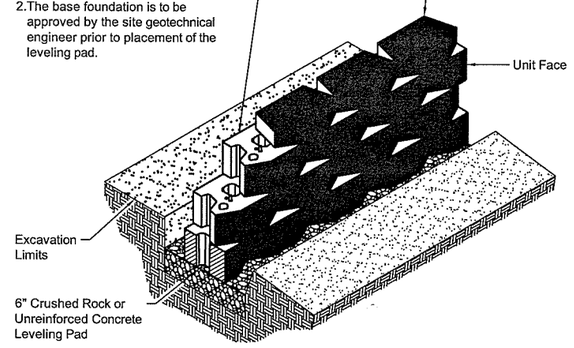
Compac Unit - 1" Setback

Base Leveling Pad Notes:

1. The leveling pad is to be constructed of crushed stone or 2,000 psi± unreinforced concrete
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

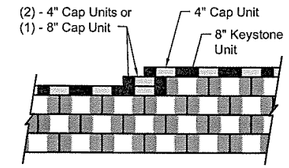
Compac Unit	
Width:	18"
*Depth:	12"
Height:	8"
*Weight:	85 lbs

Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	45 lbs



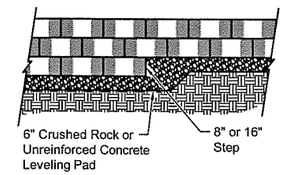
Compac Unit/Base Pad Isometric Section View

* Dimensions & Weight May Vary by Region



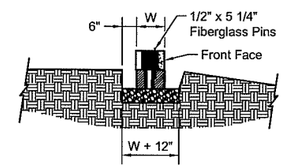
Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps



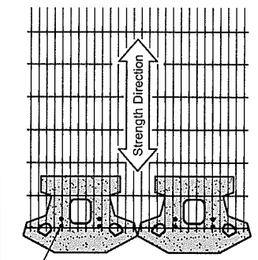
Elevation

Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.



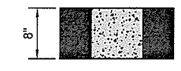
Section

Leveling Pad Detail

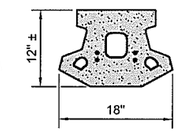


Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection



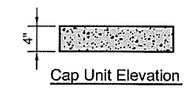
Compac Elevation



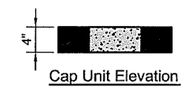
Compac Plan

Compac Unit

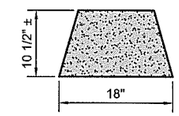
* Dimensions May Vary by Region



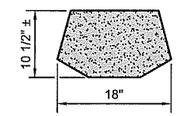
Cap Unit Elevation



Cap Unit Elevation



Cap Unit Plan



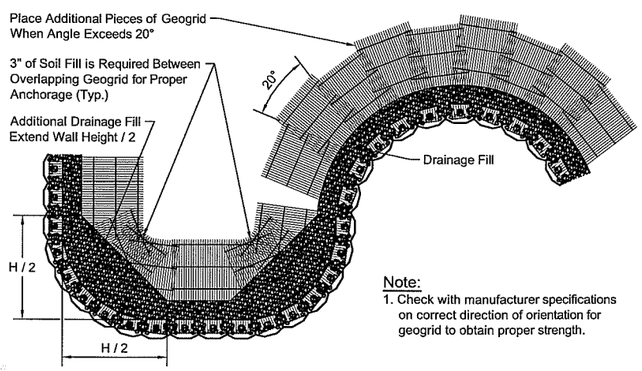
Cap Unit Plan

Universal Cap Unit Option

* Dimensions & Availability Will Vary by Region

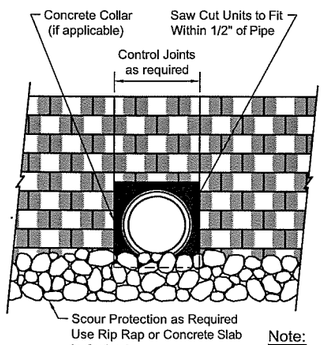
3-Plane Split Cap Unit Option

* Dimensions & Availability Will Vary by Region



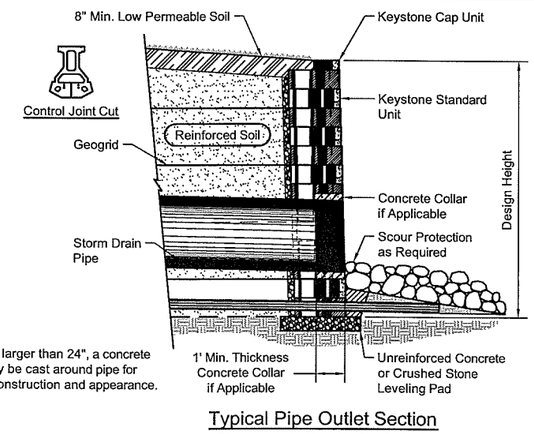
Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

Geogrid Installation on Curves



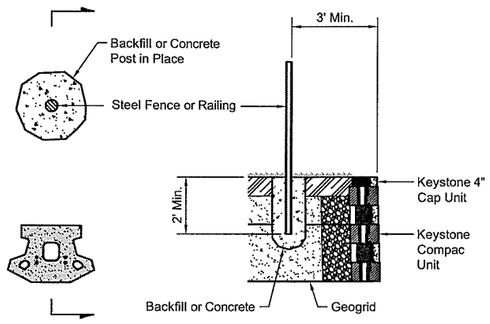
Note:
For pipes larger than 24", a concrete collar may be cast around pipe for ease of construction and appearance.

Typical Pipe Outlet Detail



Typical Pipe Outlet Section

Standard Unit - Near Vertical Setback

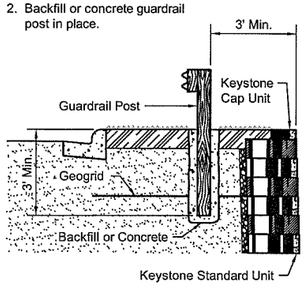


Fence Plan Detail

Fence SectionDetail

Compac Unit - Near Vertical Setback

Note:
1. Auger through geogrid layers.
2. Backfill or concrete guardrail post in place.



Typical Guardrail Detail

Standard Unit - Near Vertical Setback Shown

DESIGNED	ME
DRAWN	KB
CRP	301422
HOR.	NA
VERT.	NA
DATE	9/8/04
DWG:	W03
SHEET	OF

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

MICHAEL M. ERDICK STATE OF WASHINGTON 40282 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
RETAINING WALL DETAILS
WALLS NO. 5 & 6

proud past, promising future
CLARK COUNTY WASHINGTON

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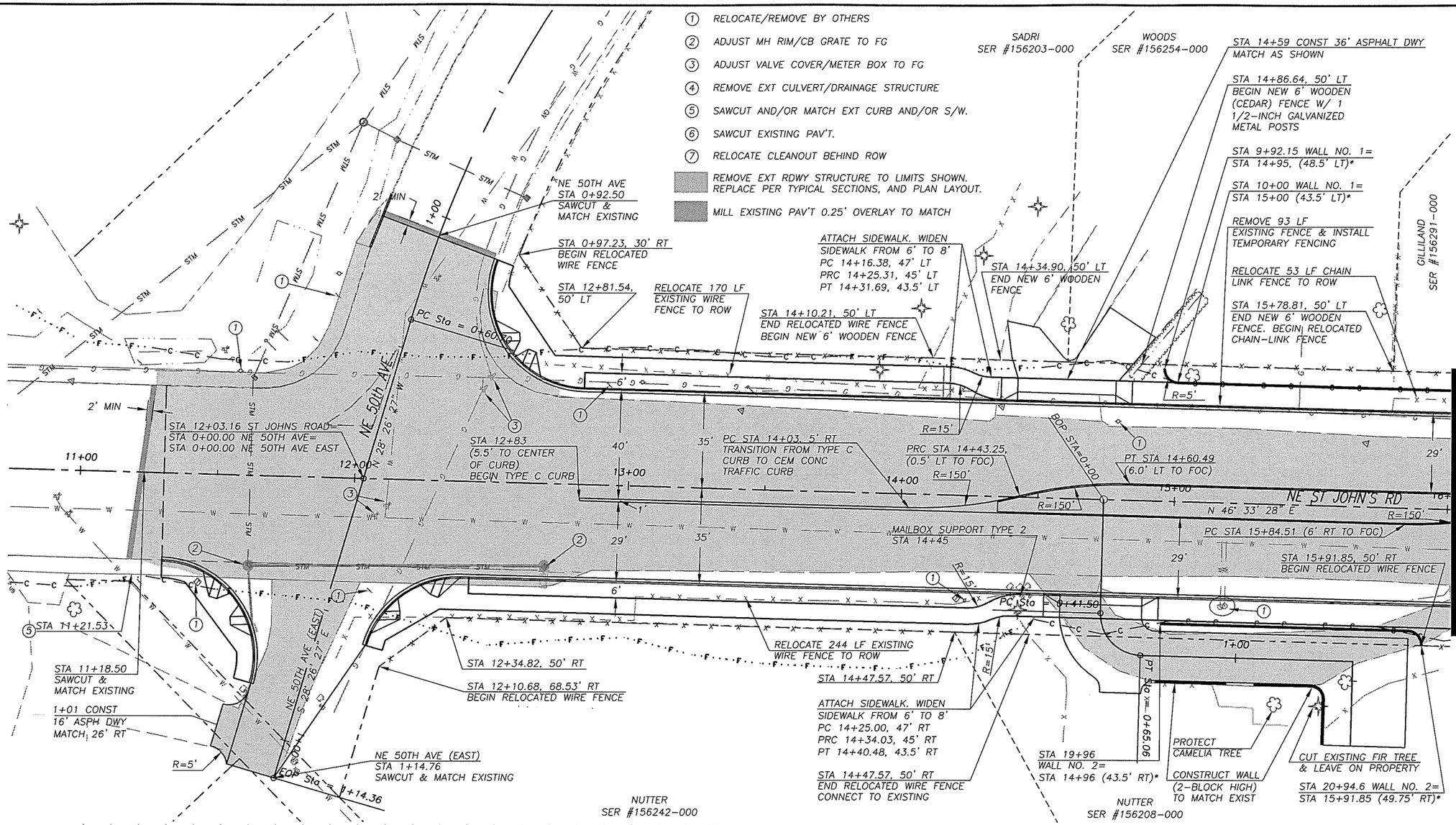

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	2620
EMBANKMENT	300

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP01
SHEET	OF

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

STATE OF WASHINGTON MICHAEL M. EMICH 36153 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAY 20, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (B.O.P. TO STA 16+00)

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CLARK COUNTY WASHINGTON

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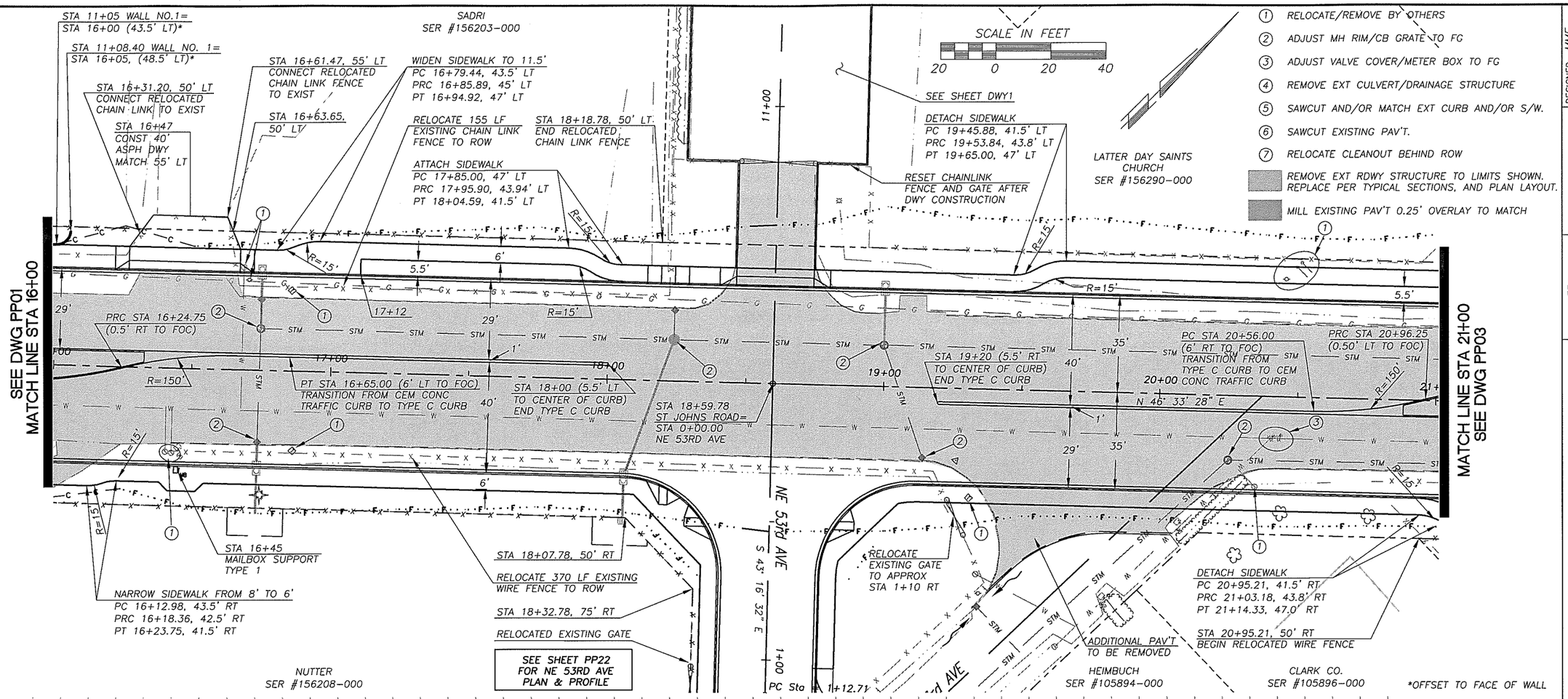

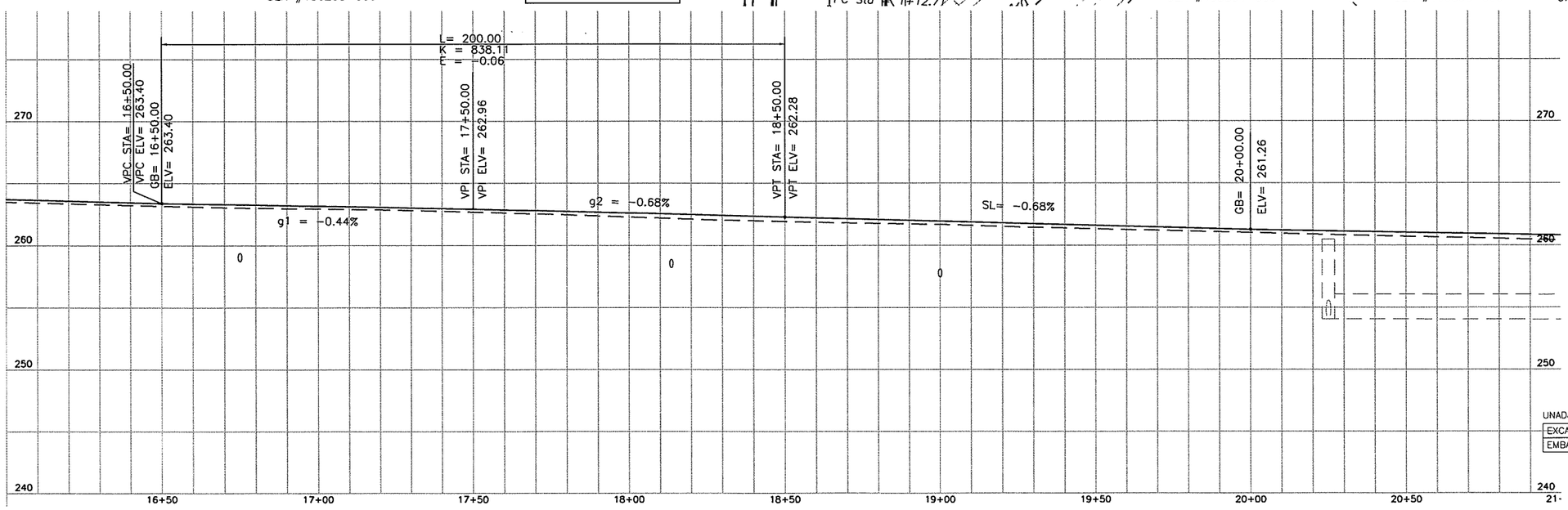

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1600
EMBANKMENT	900

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP02
SHEET	OF

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

MICHAEL M. ENDRICK STATE OF WASHINGTON 29510 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 16+00 TO 21+00)

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CLARK COUNTY WASHINGTON

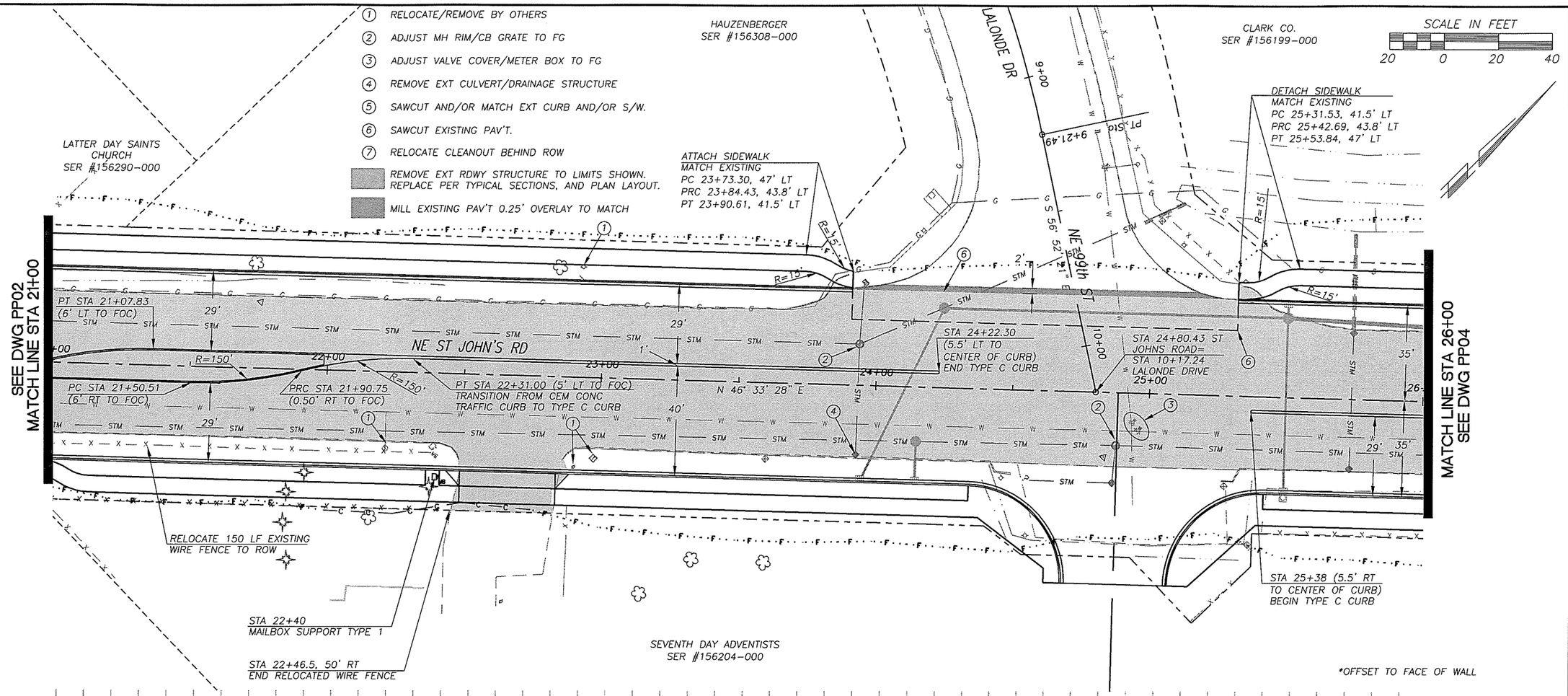
N:\CIPPROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\PP02.dwg, 11/22/2004 3:33:04 PM, kerlinr

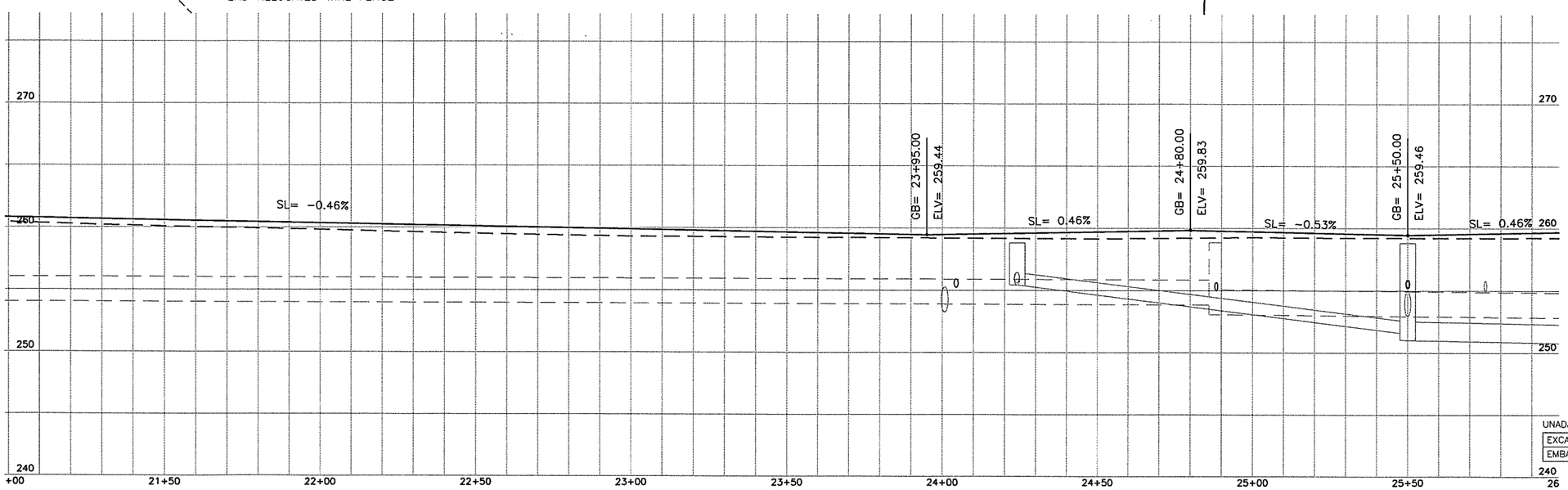
1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH

SCALE IN FEET: 20 0 20 40





UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1650
EMBANKMENT	580

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG.	PP03
SHEET	OF

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

MICHAEL K. EMICK STATE OF WASHINGTON 29310 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 21+00 TO 26+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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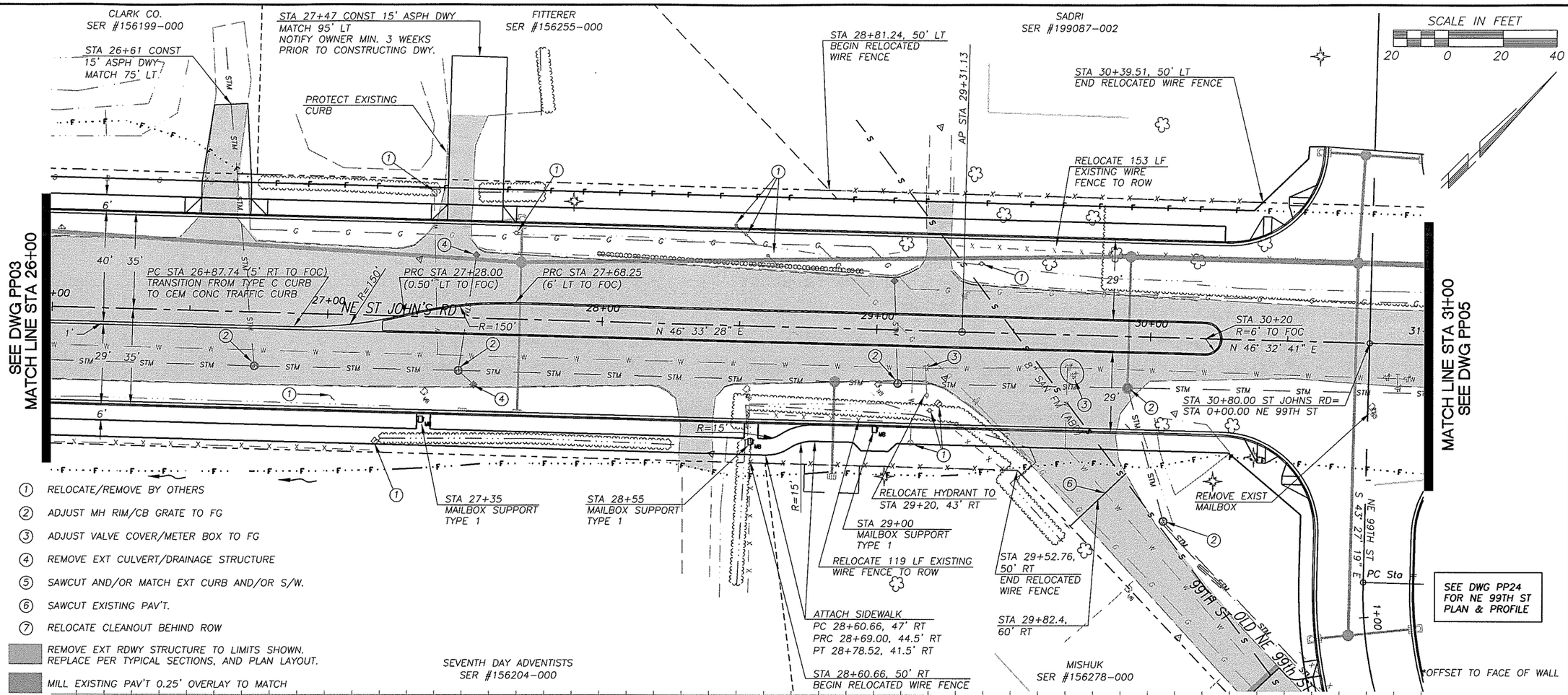

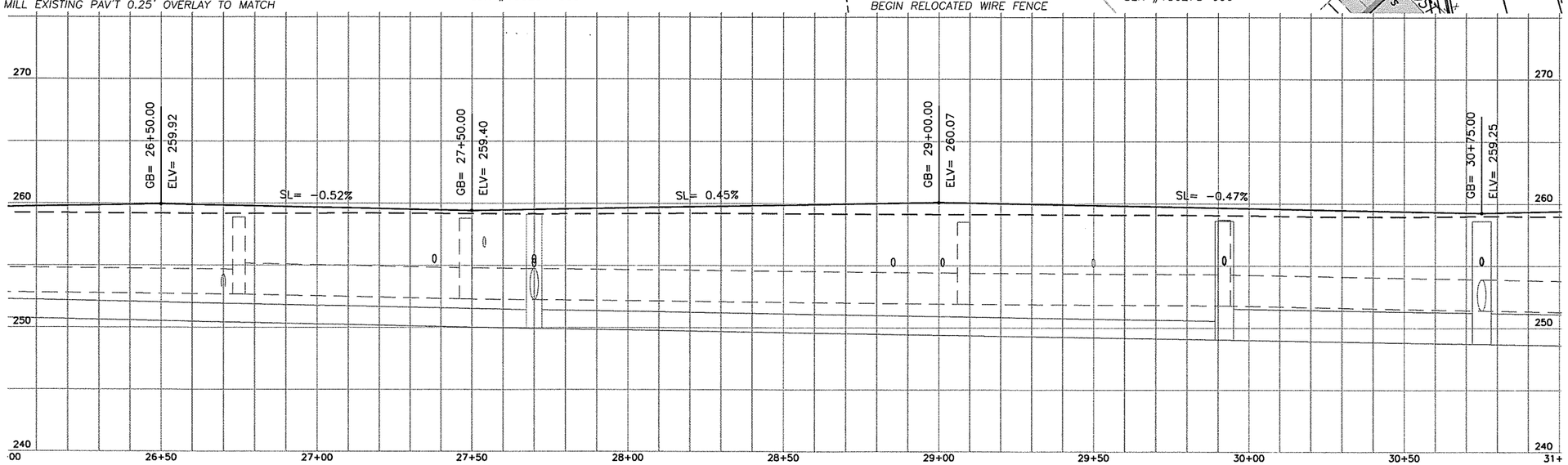

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	50
EMBANKMENT	50

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP04
SHEET	OF

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

STANLEY W. EMERICK
WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
29040
EXPIRES JULY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 26+00 TO 31+00)

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CLARK COUNTY
WASHINGTON

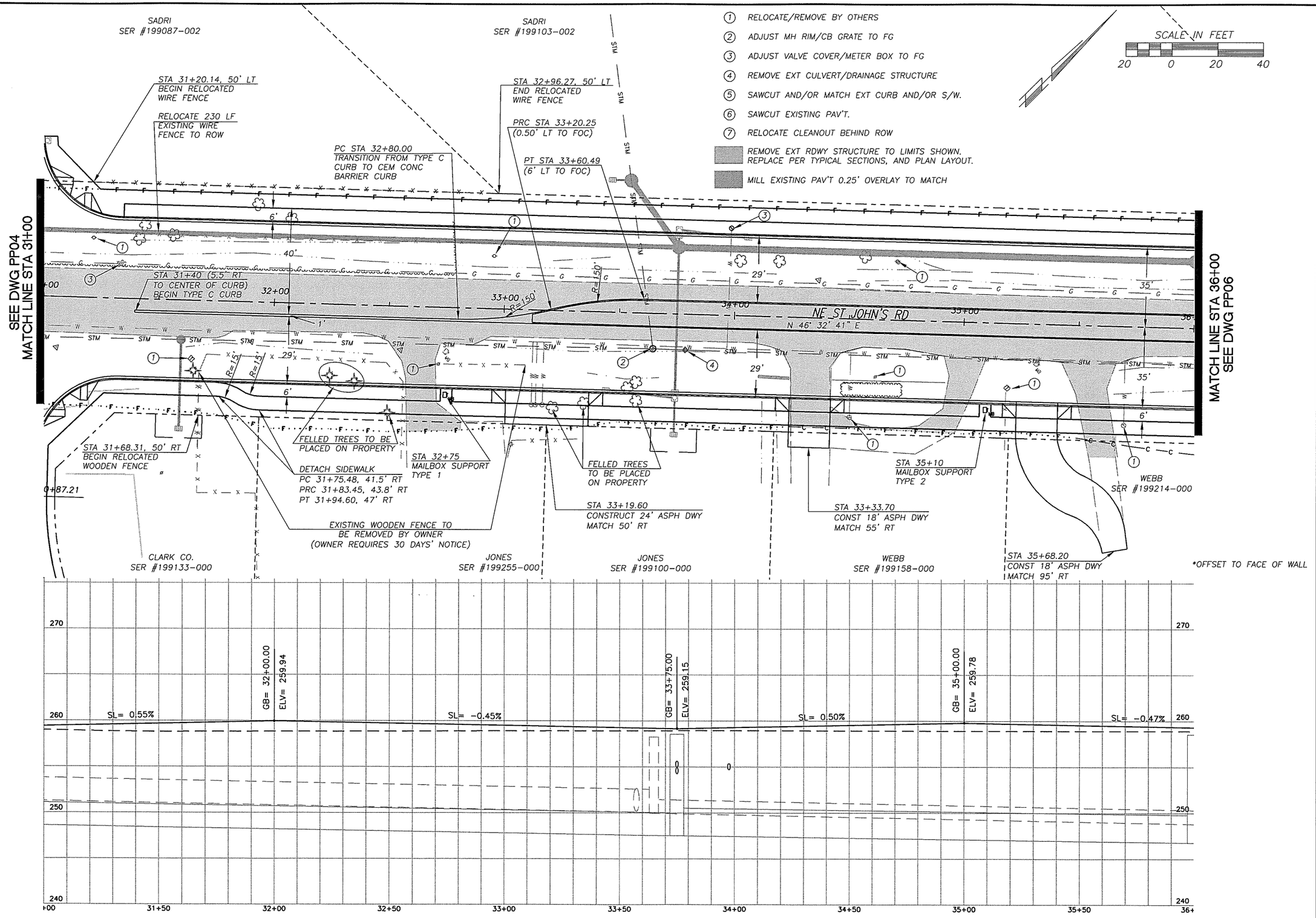
N:\CIP\PROJECTS\301422-STJohns-50thToNE72nd\DESIGN\DWGS\PP04.dwg, 11/22/2004 3:33:43 PM, kerlinr

1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH

SCALE IN FEET: 20 0 20 40



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1350
EMBANKMENT	400

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG.	PP05
SHEET	OF

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

MICHAEL M. EMRICK STATE OF WASHINGTON 29300 REGISTERED PROFESSIONAL ENGINEER EXPIRES:MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 31+00 TO 36+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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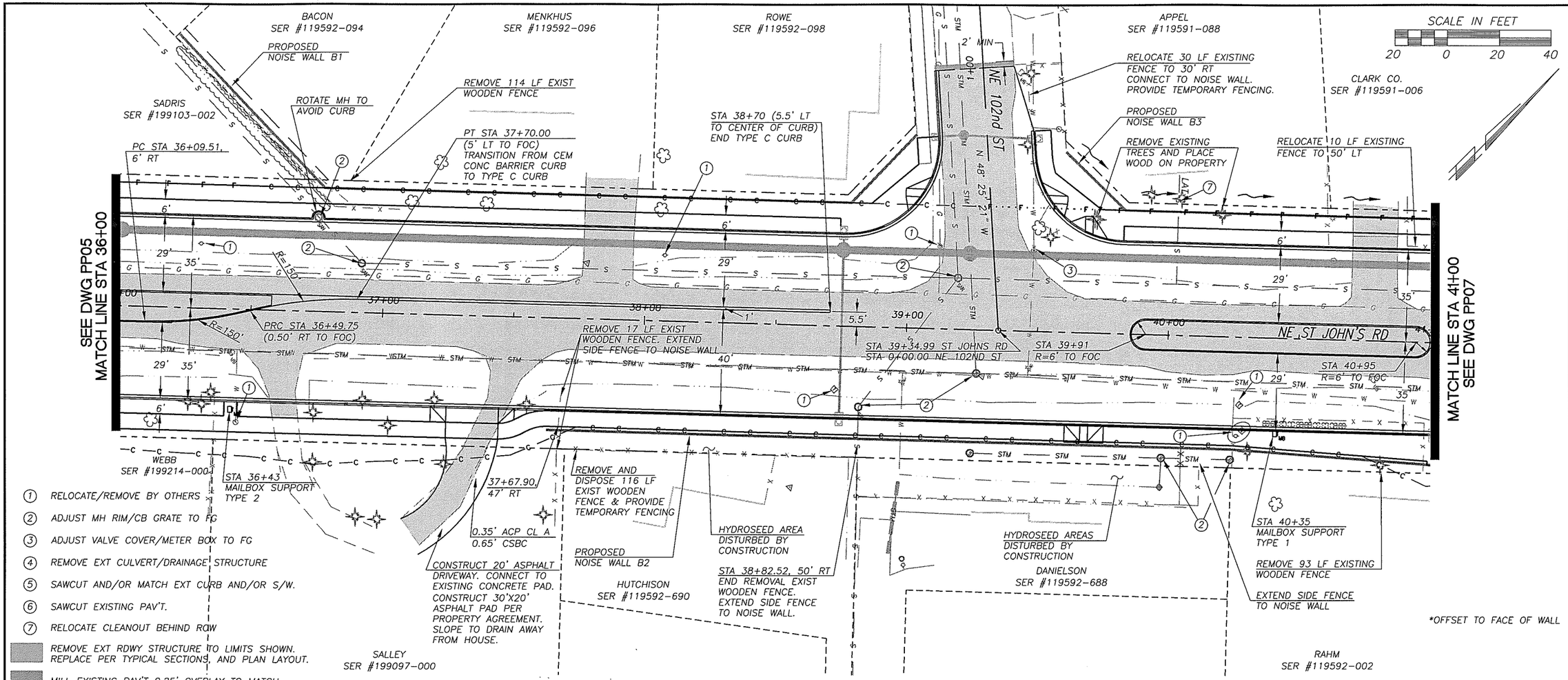
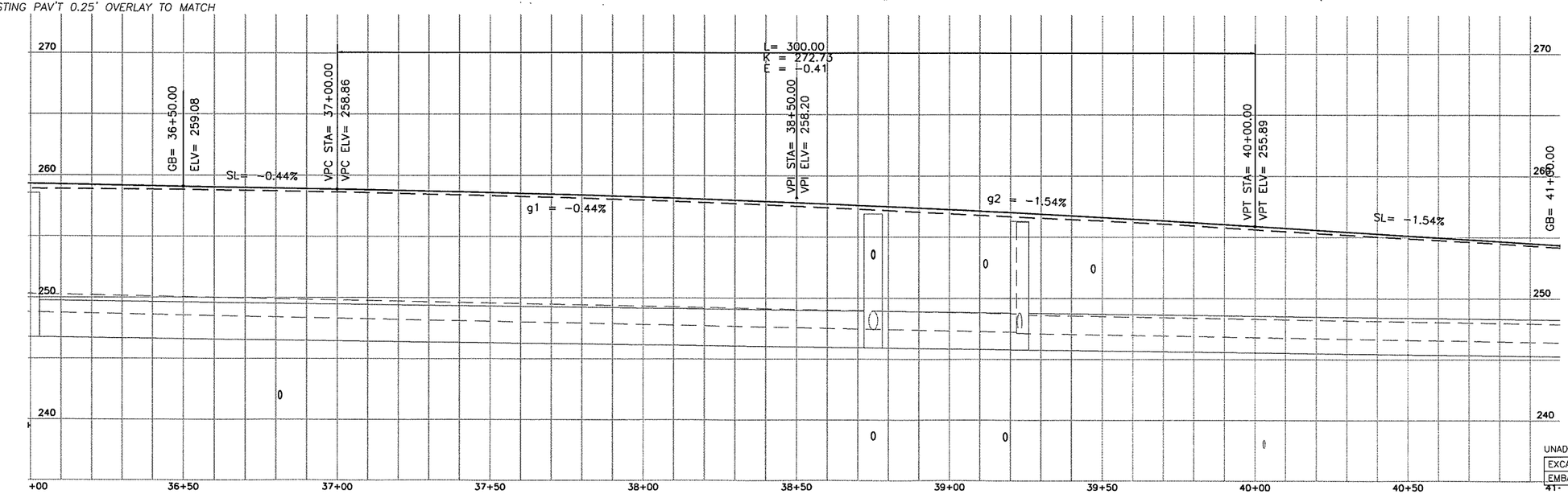


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	3350
EMBANKMENT	30

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG.	PP06
SHEET	OF

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

MICHAEL W. LEMOICK STATE OF WASHINGTON 29030 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 36+00 TO 41+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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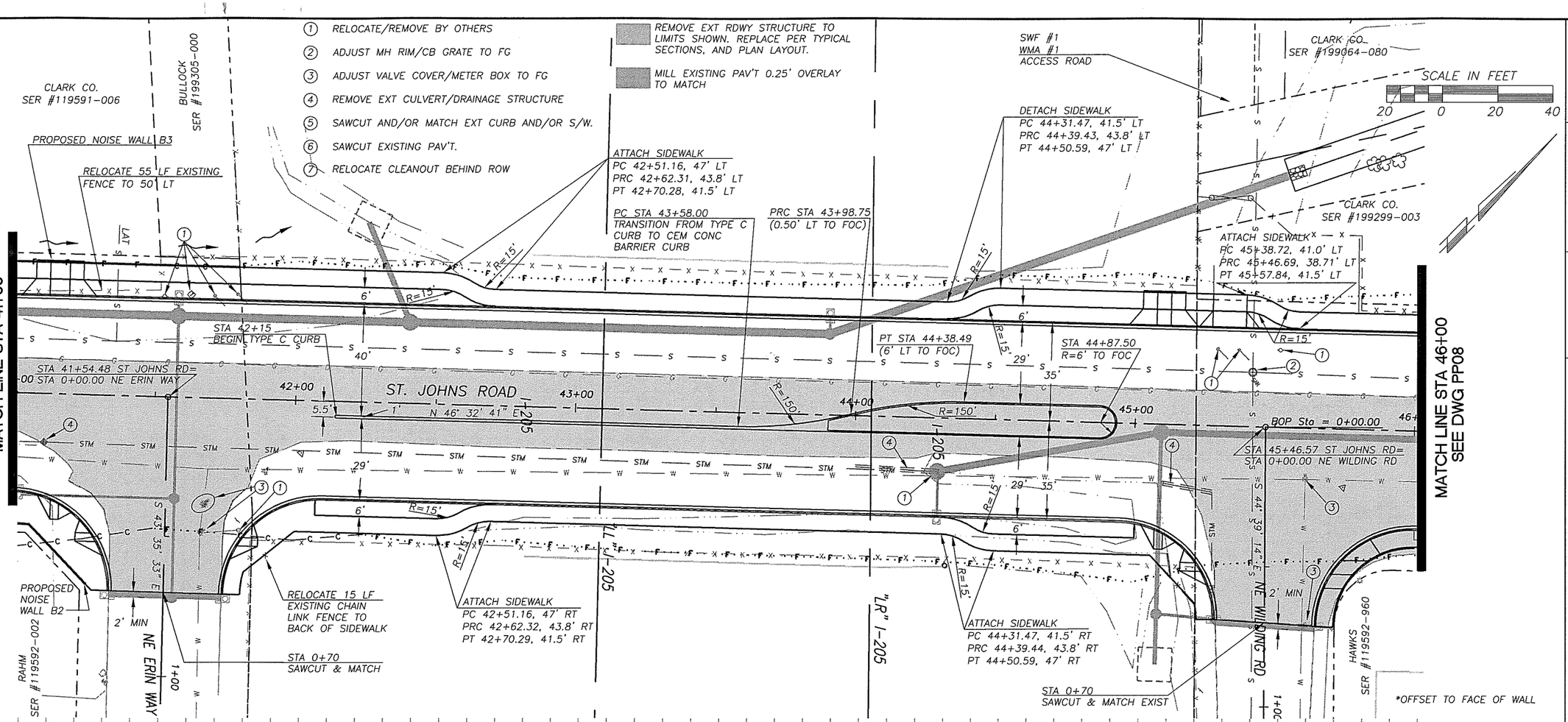

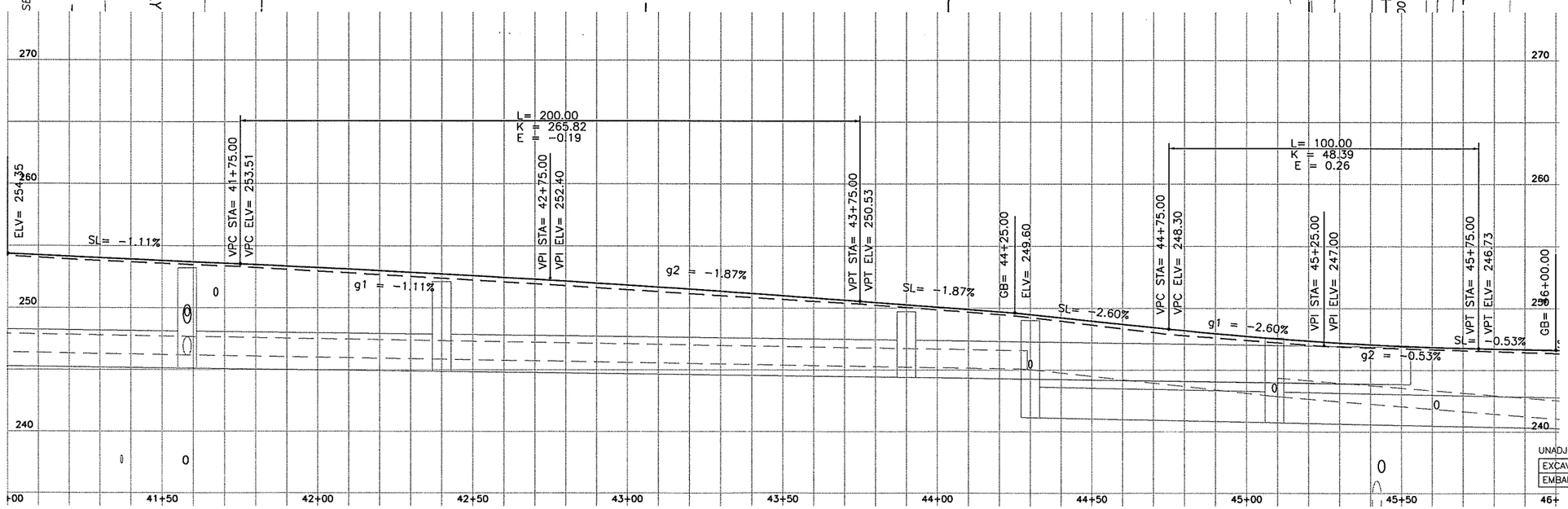

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1620
EMBANKMENT	400

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP07
SHEET	OF

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

STATE OF WASHINGTON MICHAEL M. EMDIC REGISTERED PROFESSIONAL ENGINEER EXPIRES MAR 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 41+00 TO 46+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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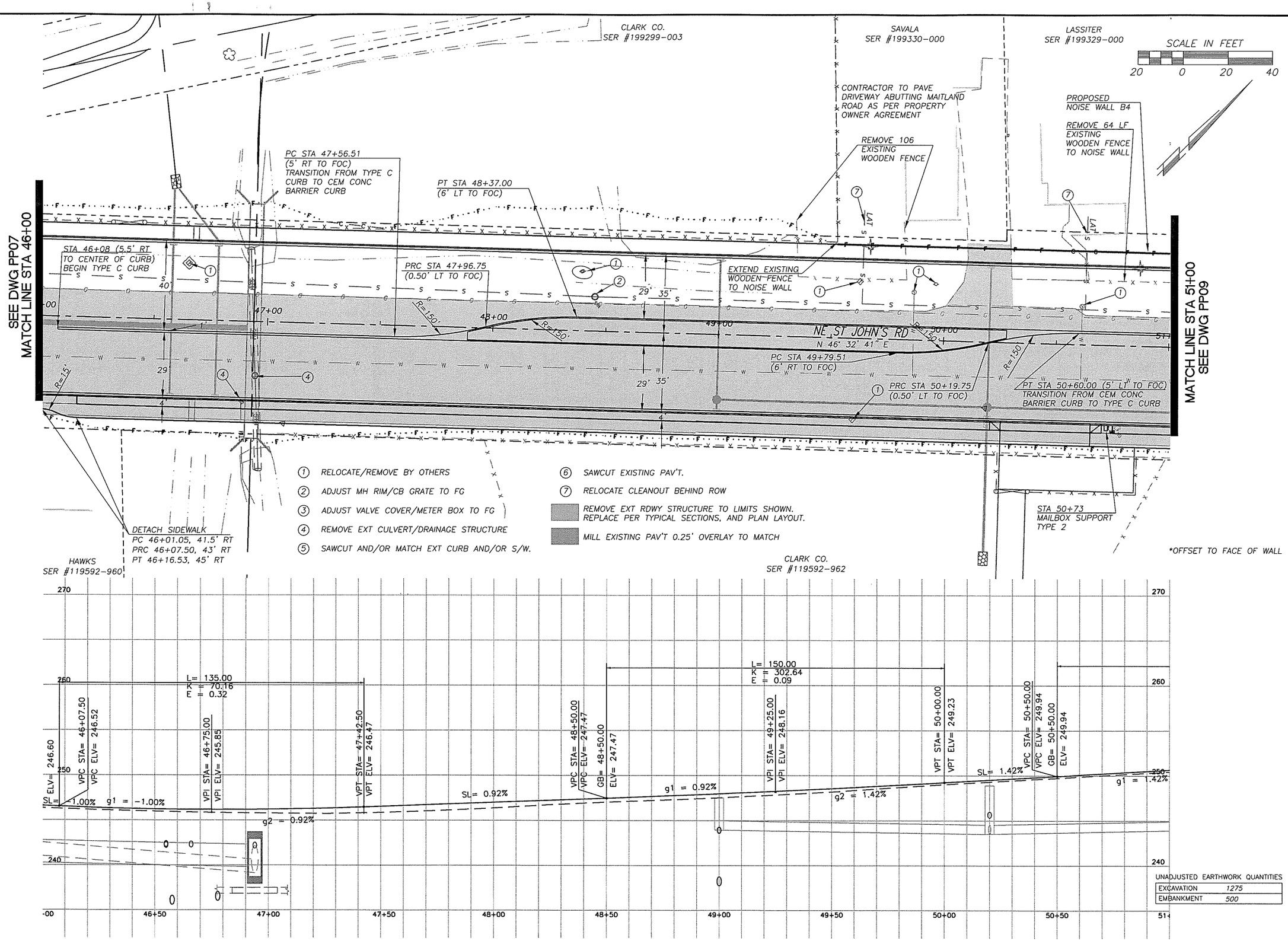

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1275
EMBANKMENT	500

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP08
SHEET	OF

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

STATE OF WASHINGTON
MICHAEL M. EDRICK
29030
PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 46+00 TO 51+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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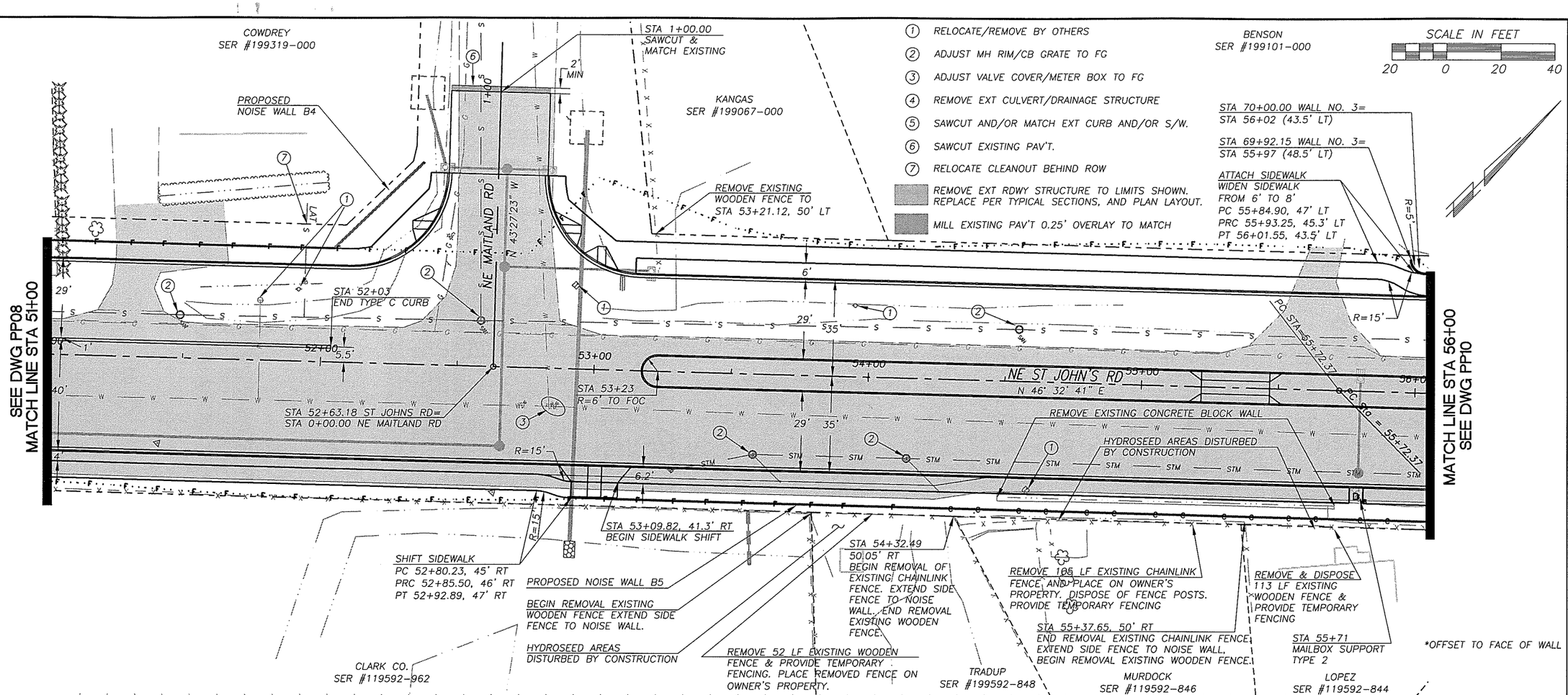
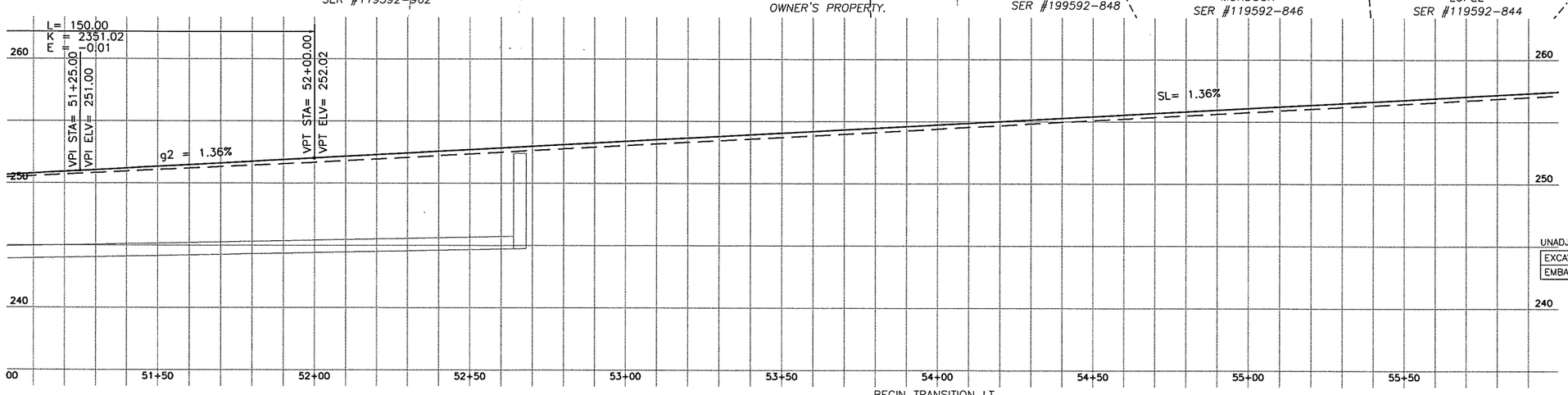
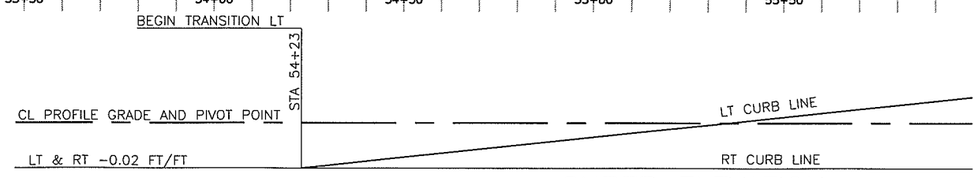




UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1520
EMBANKMENT	560



SUPER ELEVATION

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP09
SHEET	OF

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

MICHAEL M. ENRICO STATE OF WASHINGTON 29500 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 51+00 TO 56+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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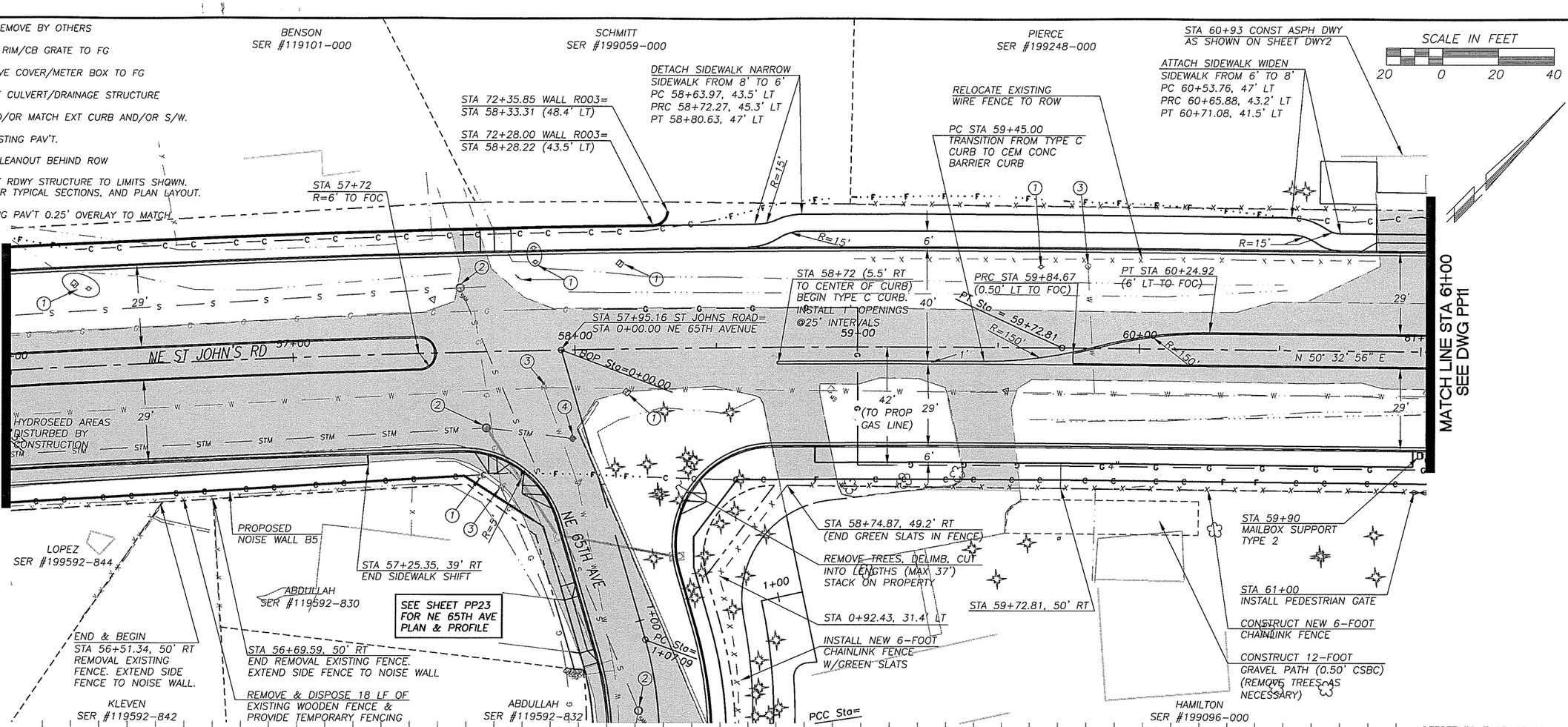
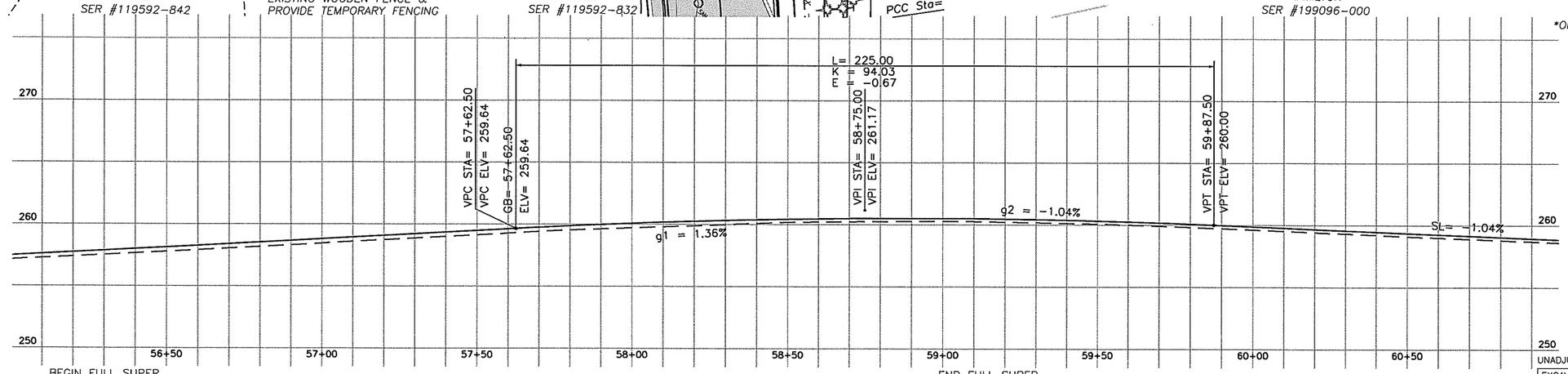
1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH





BEGIN FULL SUPER — STA 56+48 — END FULL SUPER — STA 58+98

+0.02 FT/FT LT — LT CURB

CL PROFILE GRADE AND PIVOT POINT

-0.02 FT/FT RT — RT CURB

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	2260
EMBANKMENT	130

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG.	PP10
SHEET	OF

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

MICHAEL M. EMRICH STATE OF WASHINGTON 29320 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 56+00 TO 61+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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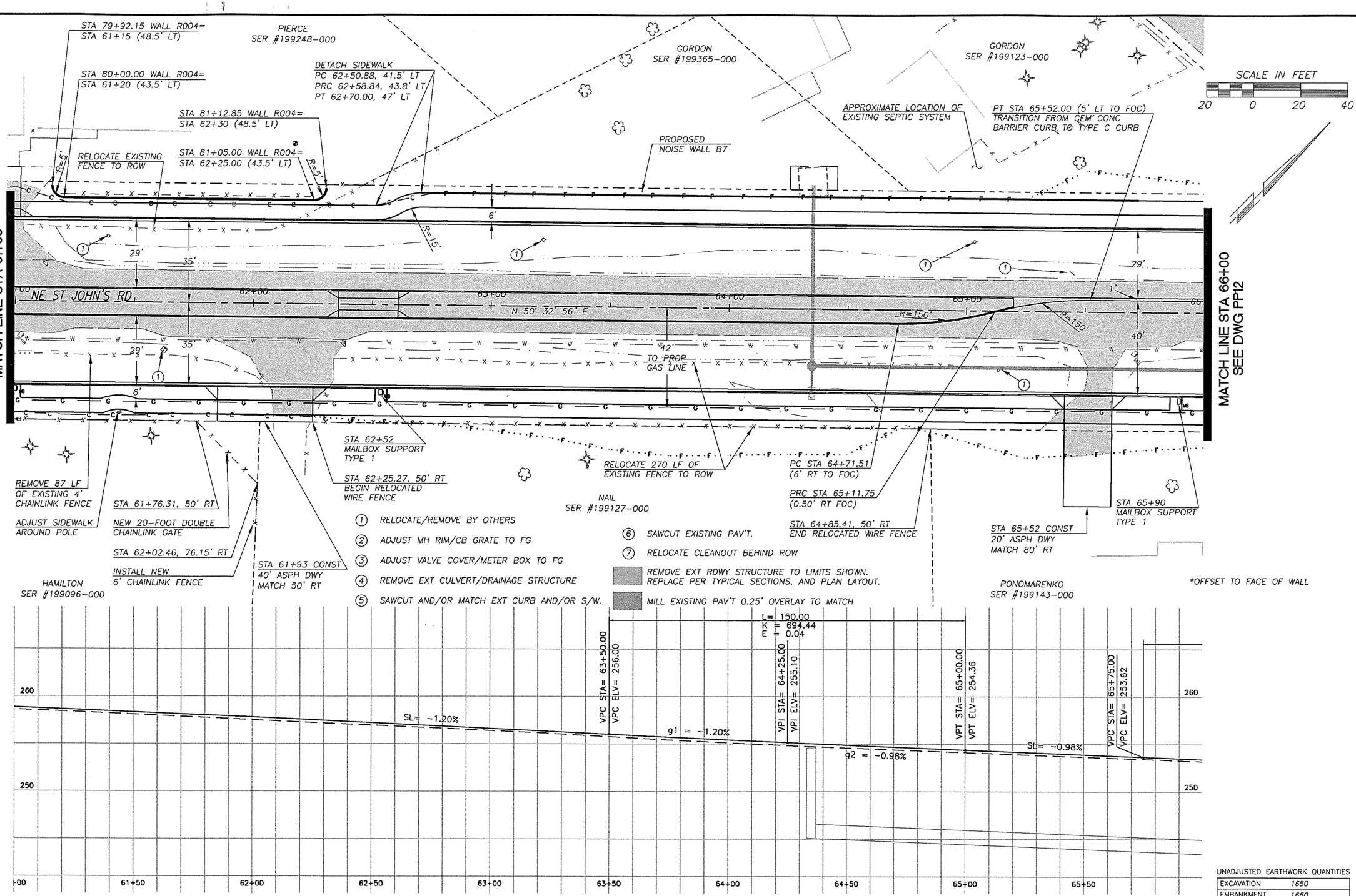

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1650
EMBANKMENT	1660

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP11
SHEET	OF

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

MICHAEL M. EMRICH
STATE OF WASHINGTON
29510
REGISTERED PROFESSIONAL ENGINEER
EXPIRES:MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 61+00 TO 66+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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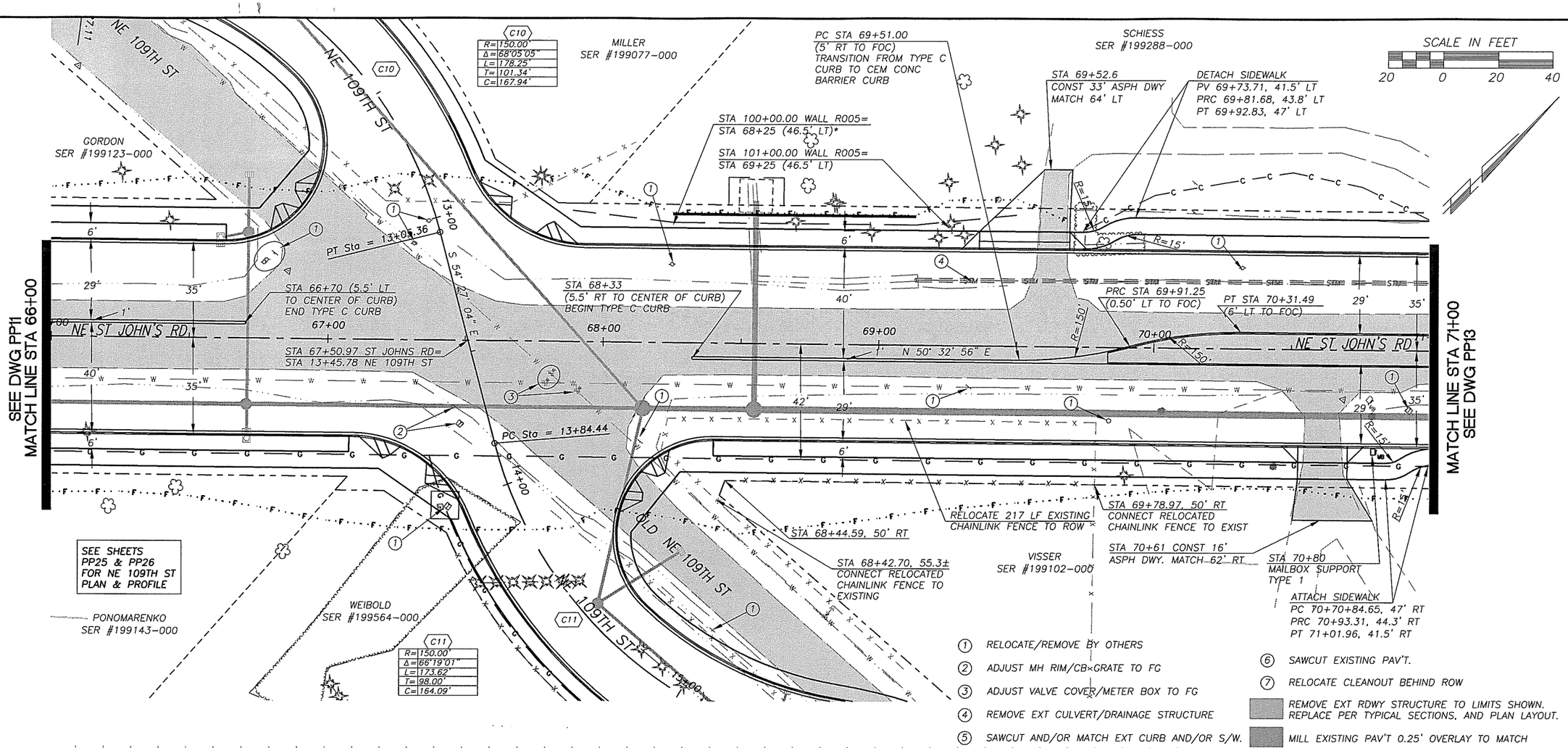
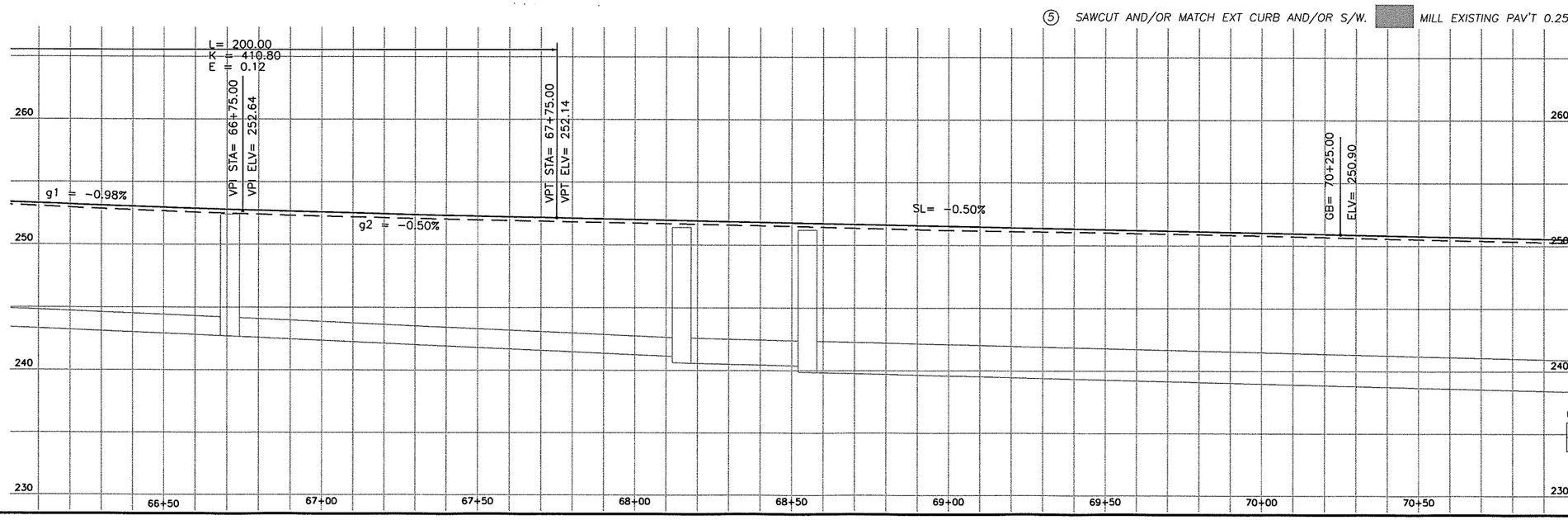


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB×GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH

*OFFSET TO FACE OF WALL



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1230
EMBANKMENT	2100

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG.	PP12
SHEET	OF

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

STATE OF WASHINGTON MICHAEL W. MEMORE REGISTERED PROFESSIONAL ENGINEER 20240 EXPIRES JULY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 66+00 TO 71+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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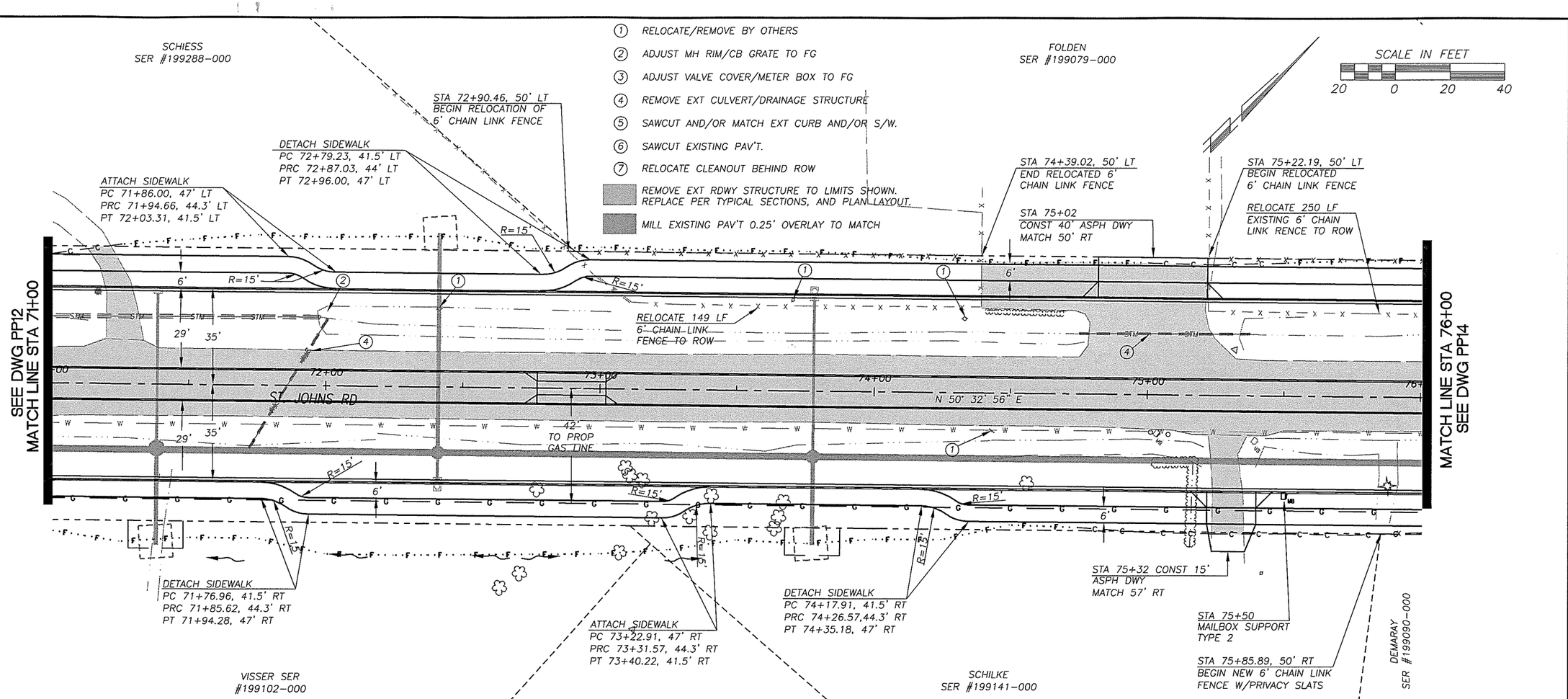

*OFFSET TO FACE OF WALL

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1320
EMBANKMENT	1570

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP13
SHEET	OF

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

MICHAEL M. EMBREE STATE OF WASHINGTON 29630 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 71+00 TO 76+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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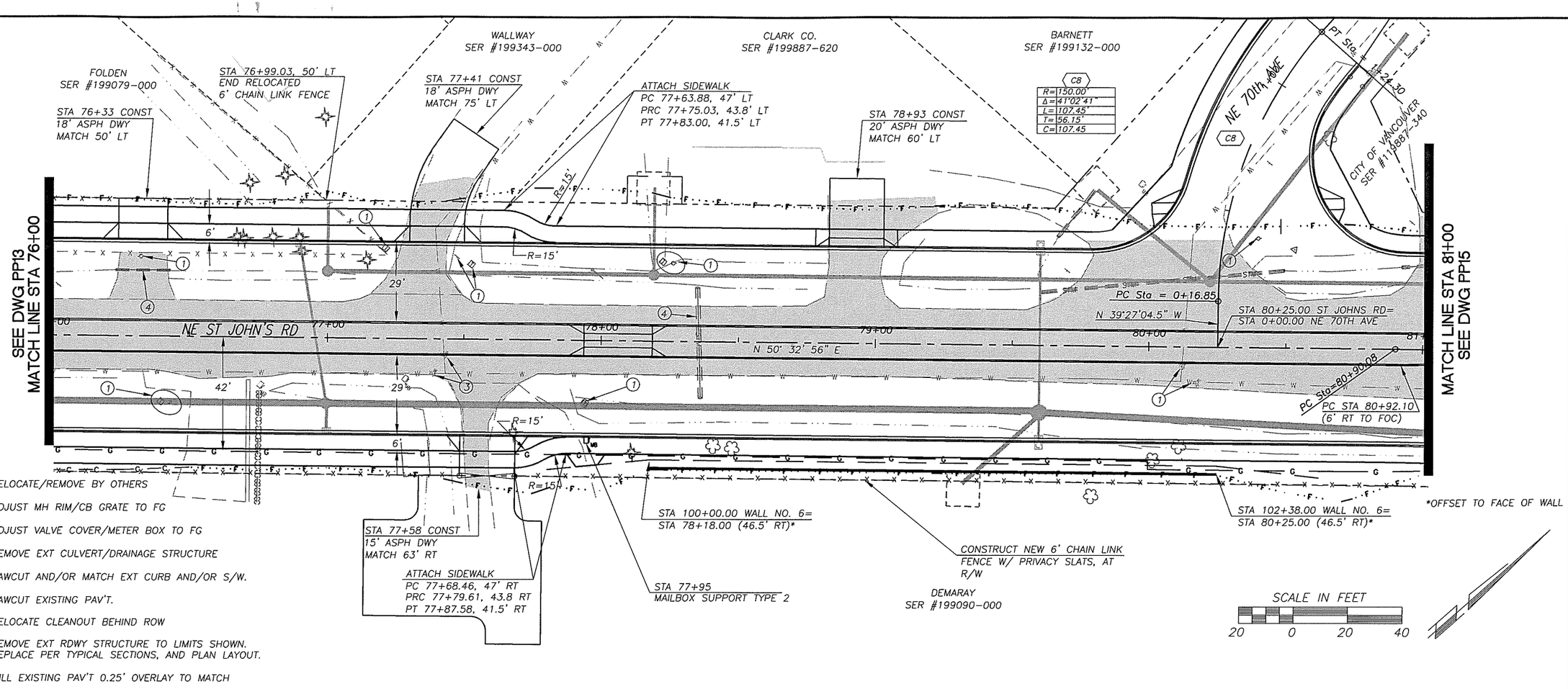
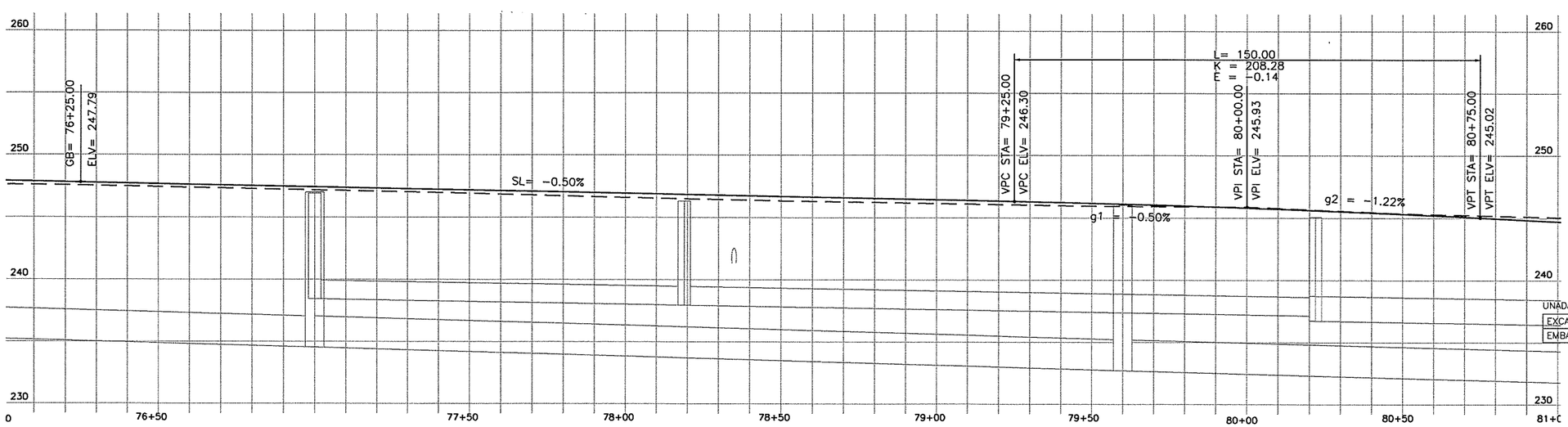


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1220
EMBANKMENT	1320

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP14
SHEET	OF

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

MICHAEL M. EMICK STATE OF WASHINGTON 19800 REGISTERED PROFESSIONAL ENGINEER EXPIRES JANUARY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 76+00 TO 81+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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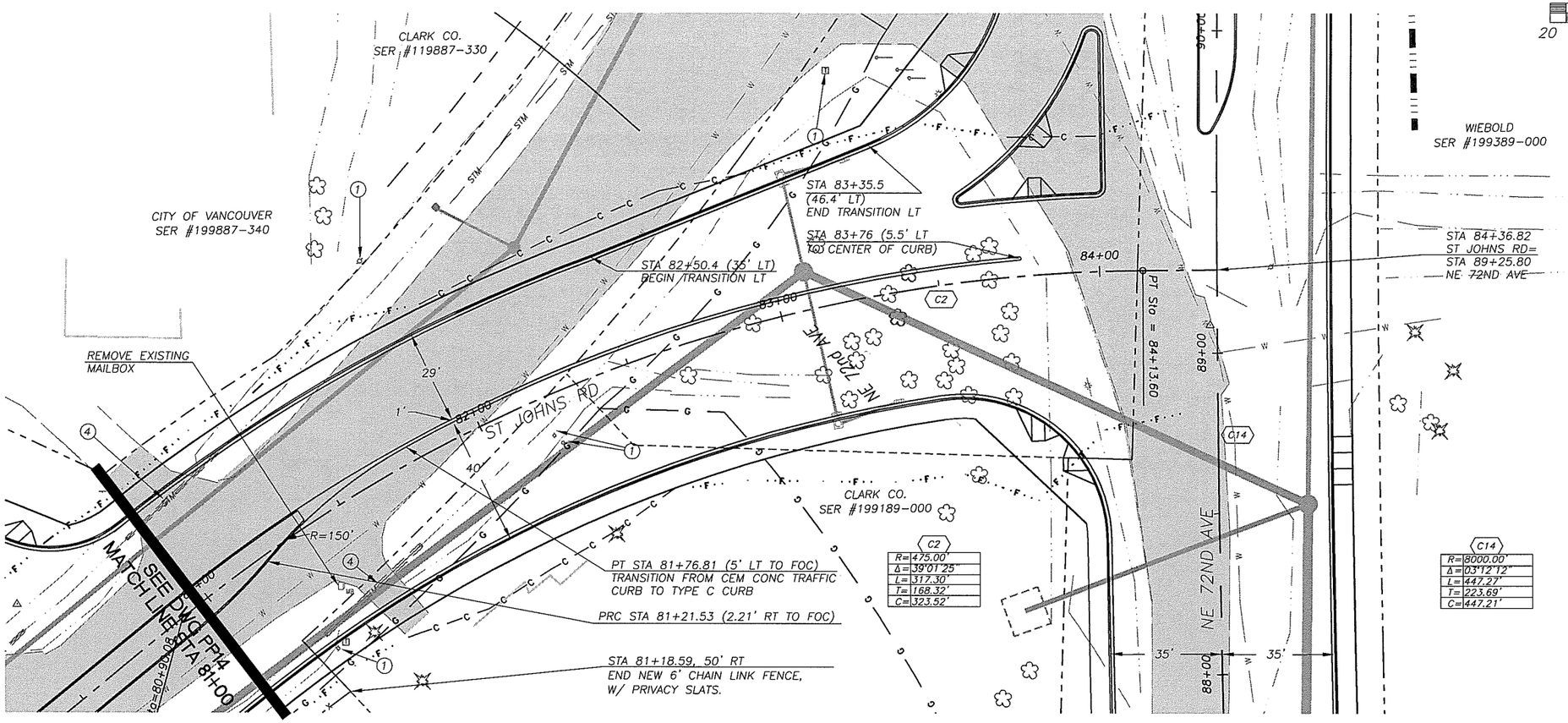

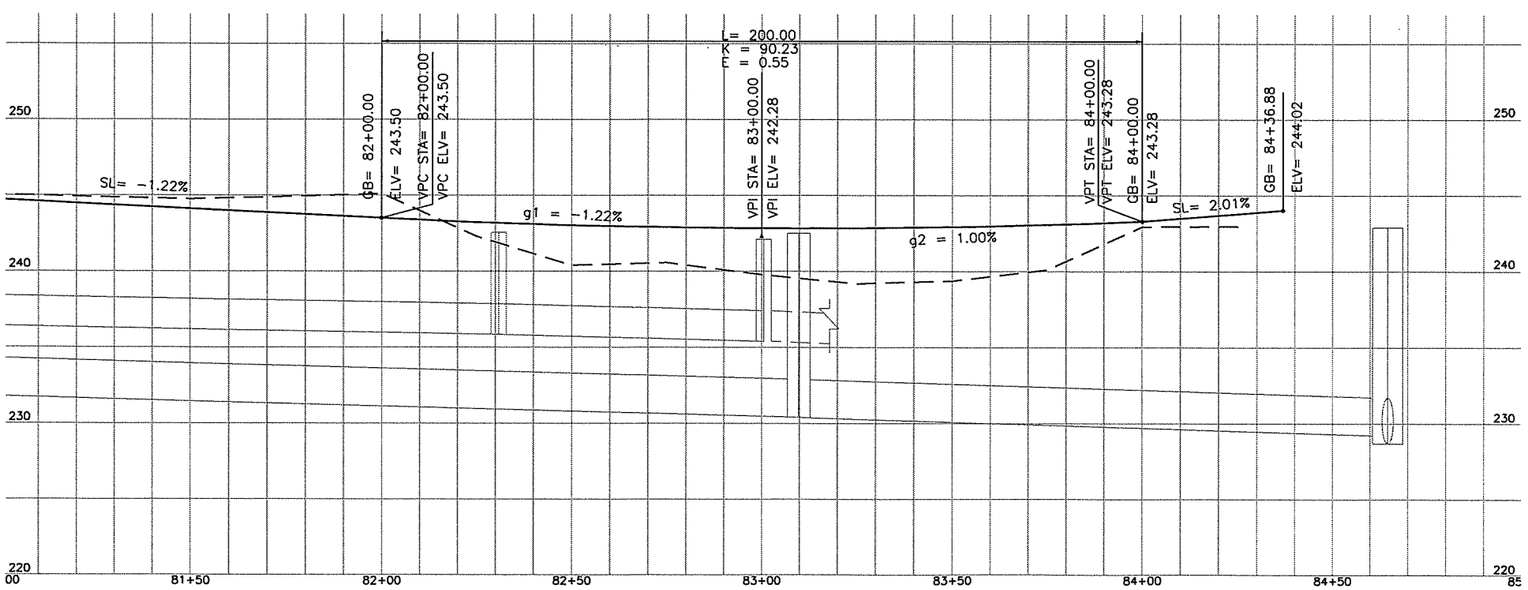

1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1240
EMBANKMENT	750

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG.	PP15
SHEET	OF

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

MICHAEL W. KERRICK STATE OF WASHINGTON 20030 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 81+00 TO 86+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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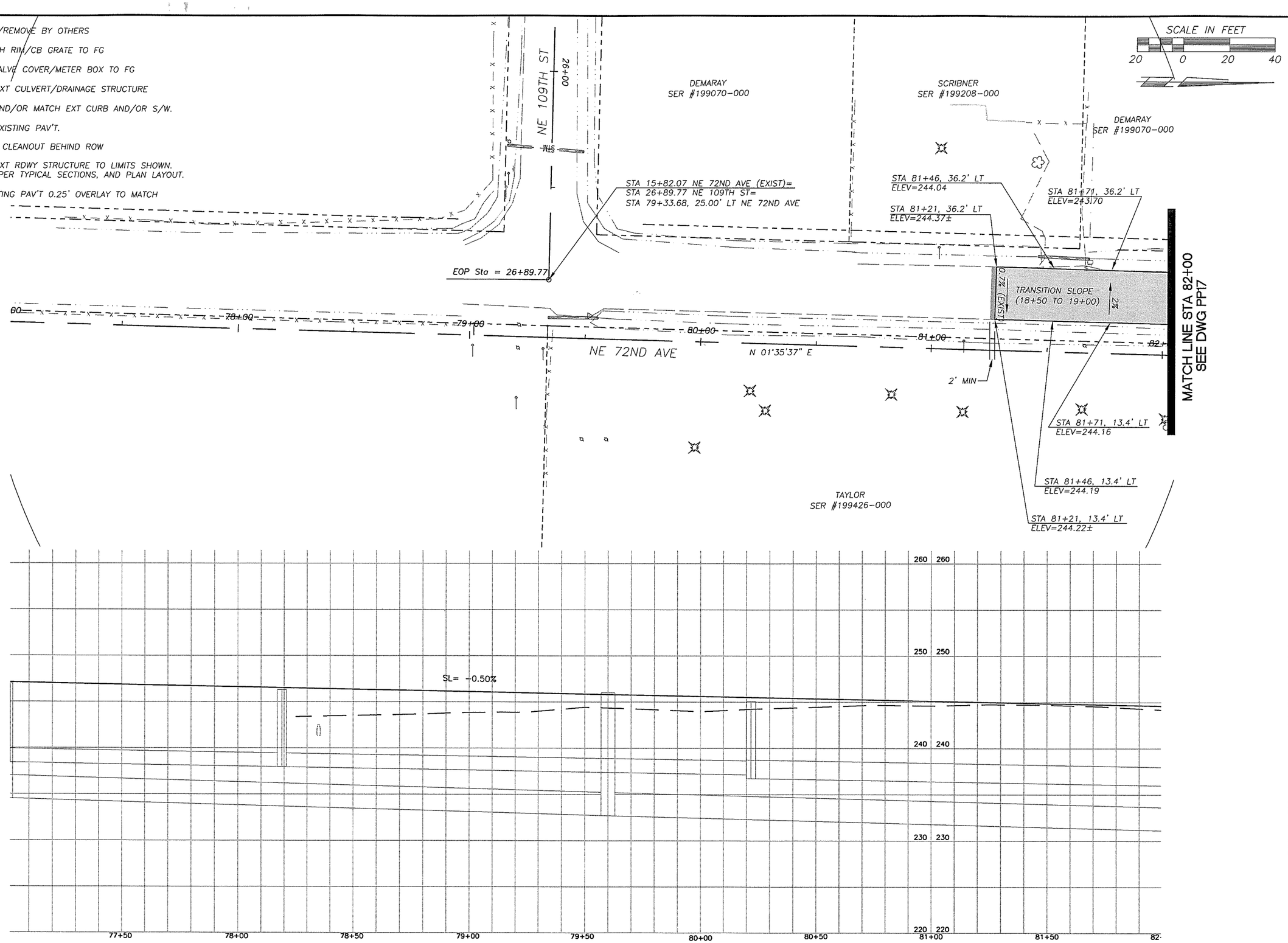
1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	240
EMBANKMENT	50

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP16
SHEET	OF

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

MICHAEL W. KIRKLICK
STATE OF WASHINGTON
29030
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 77+00 TO 82+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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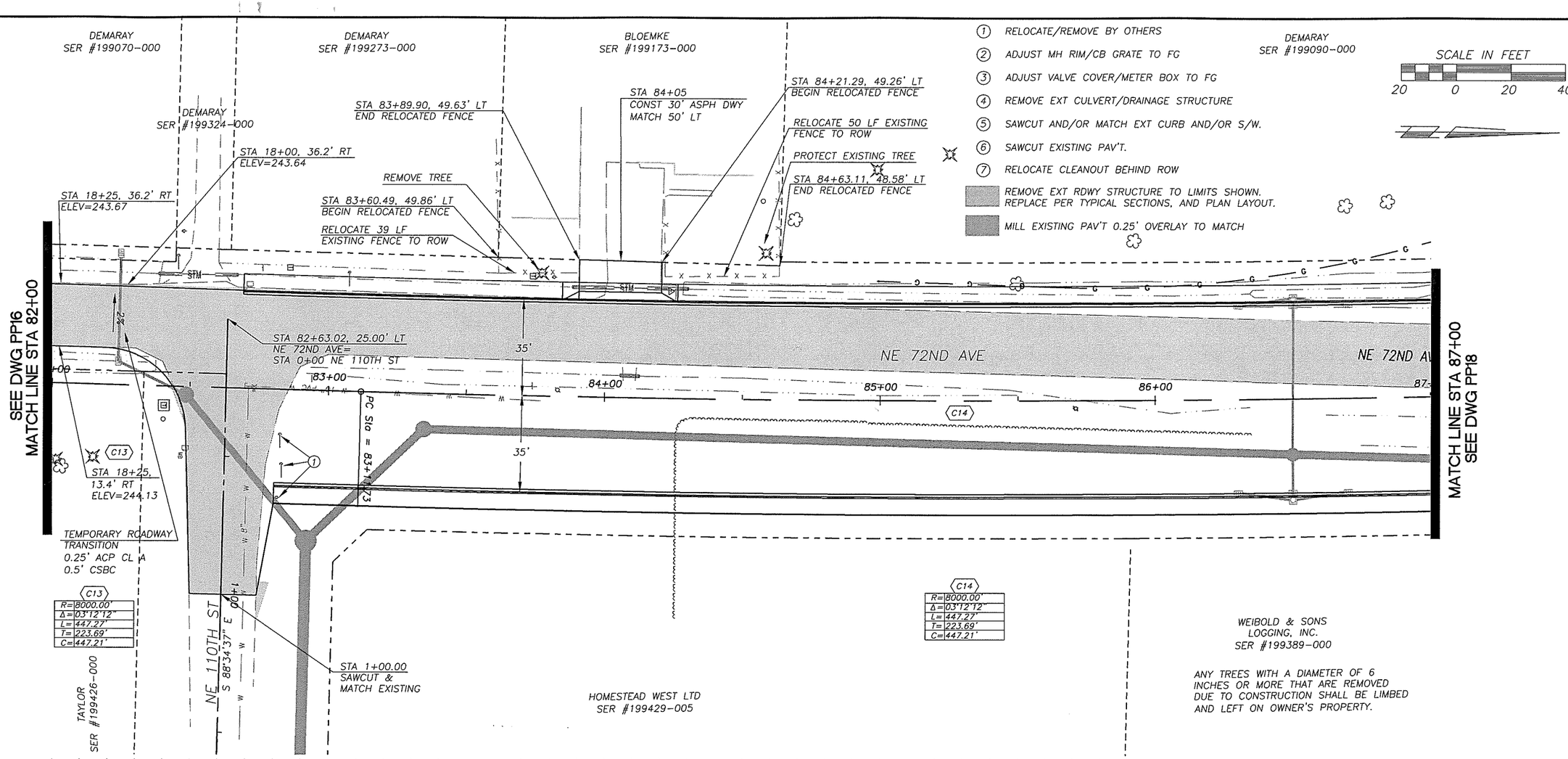

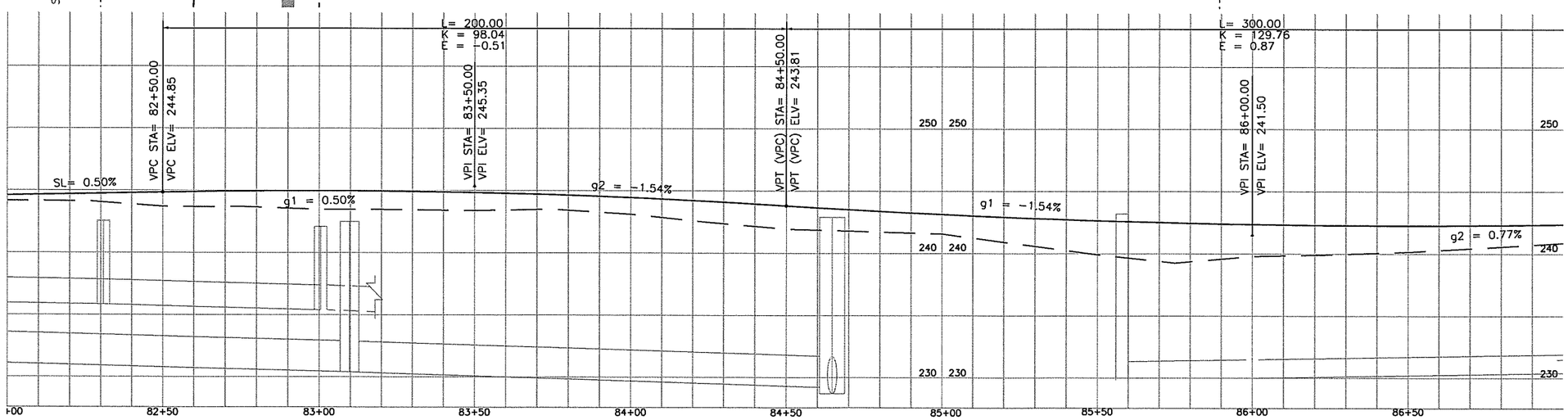

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1130
EMBANKMENT	1290

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP17
SHEET	OF

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

MICHAEL W. KEMPER
STATE OF WASHINGTON
20030
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 29, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE; NE 72ND AVE (STA 82+00 TO 87+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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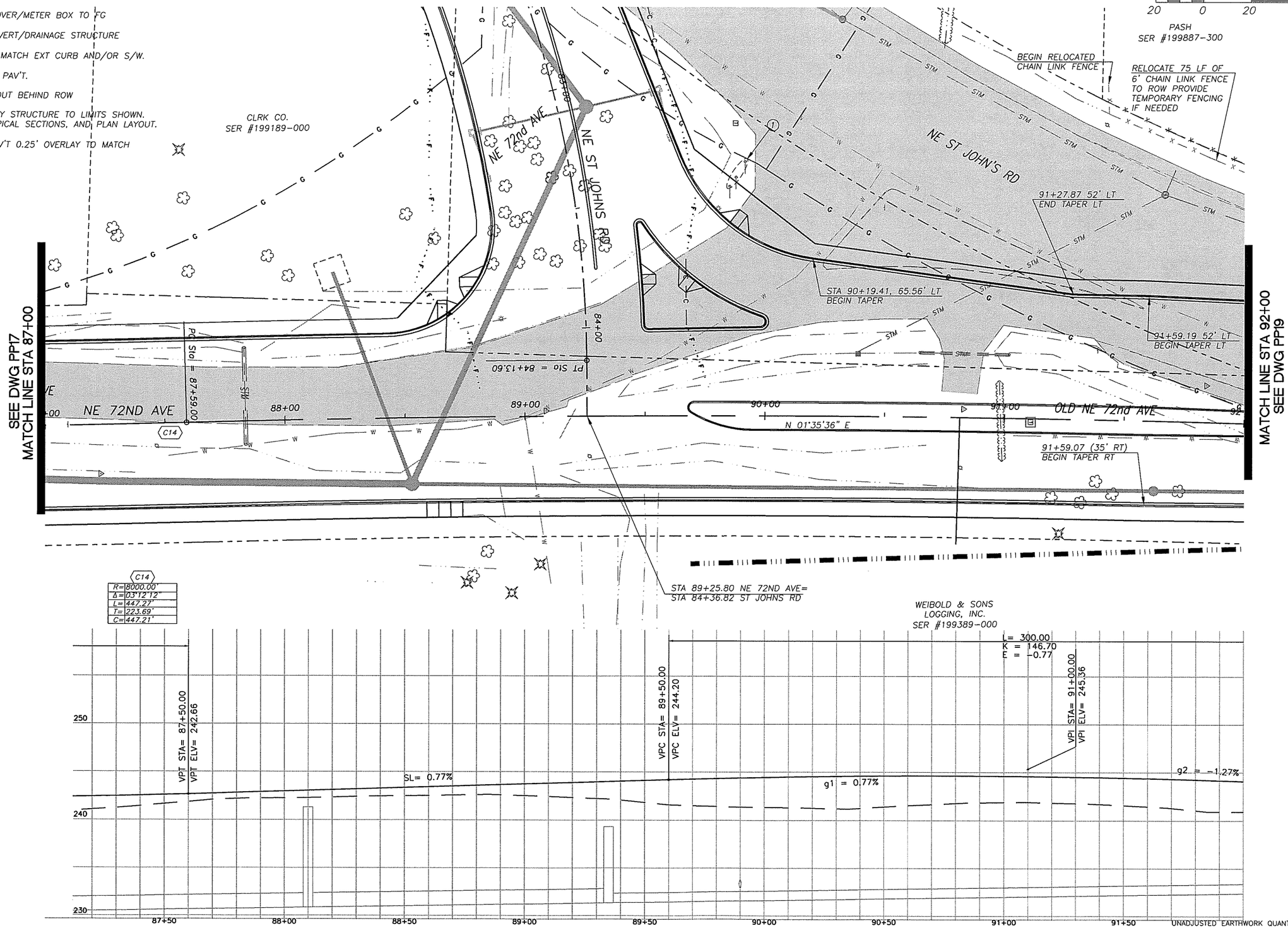
1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	550
EMBANKMENT	3090

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/03
DWG.	PP18
SHEET	OF

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

MICHAEL W. KERRICK STATE OF WASHINGTON 29130 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAY 26, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 87+00 TO 92+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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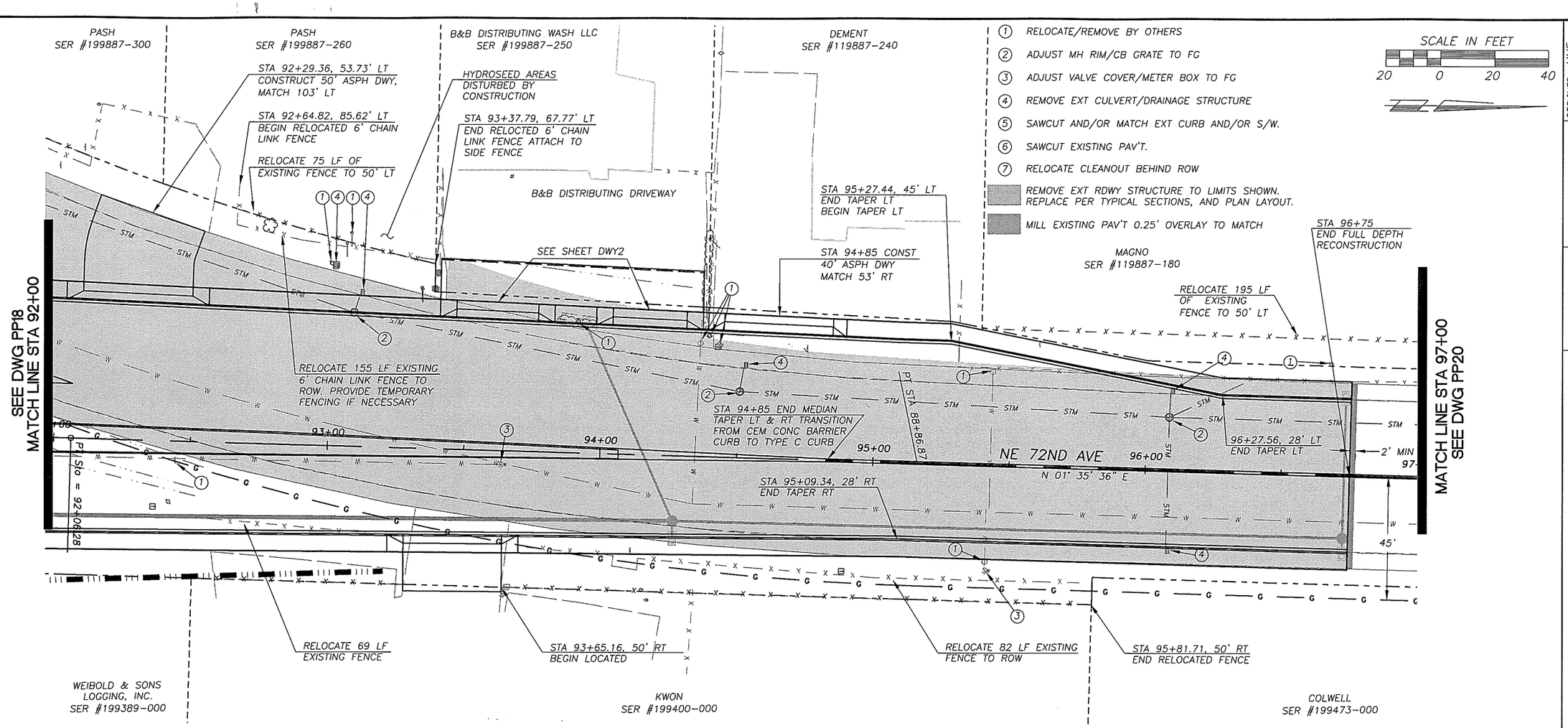
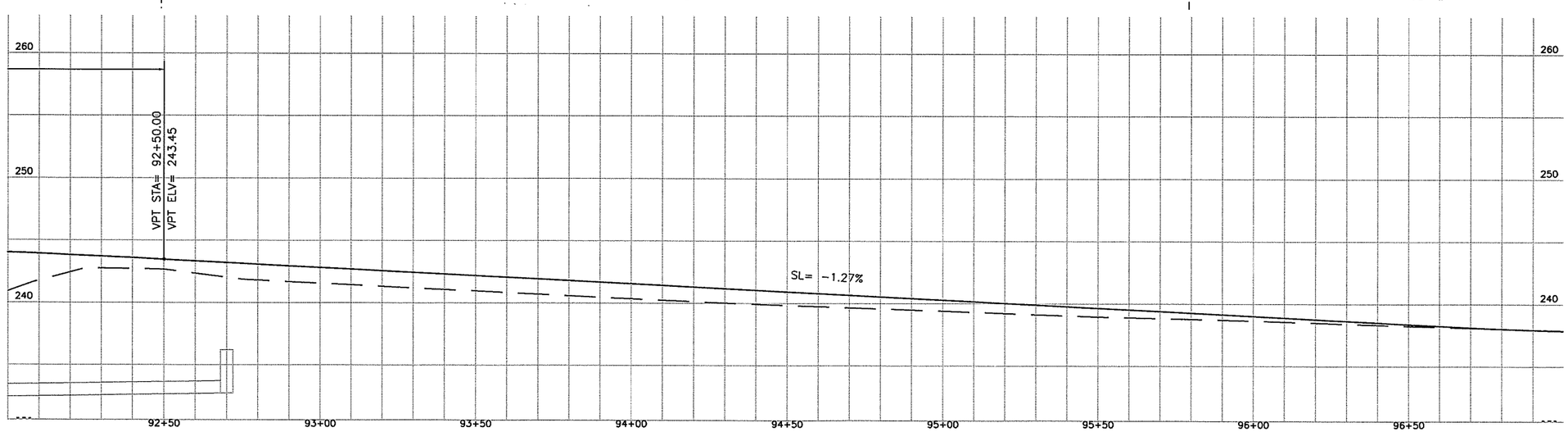


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH

SCALE IN FEET
20 0 20 40



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	1230
EMBANKMENT	250

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP19
SHEET	OF

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

MICHAEL M. EMRICK STATE OF WASHINGTON 20020 REGISTERED PROFESSIONAL ENGINEER
EXPIRES MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 92+00 TO 97+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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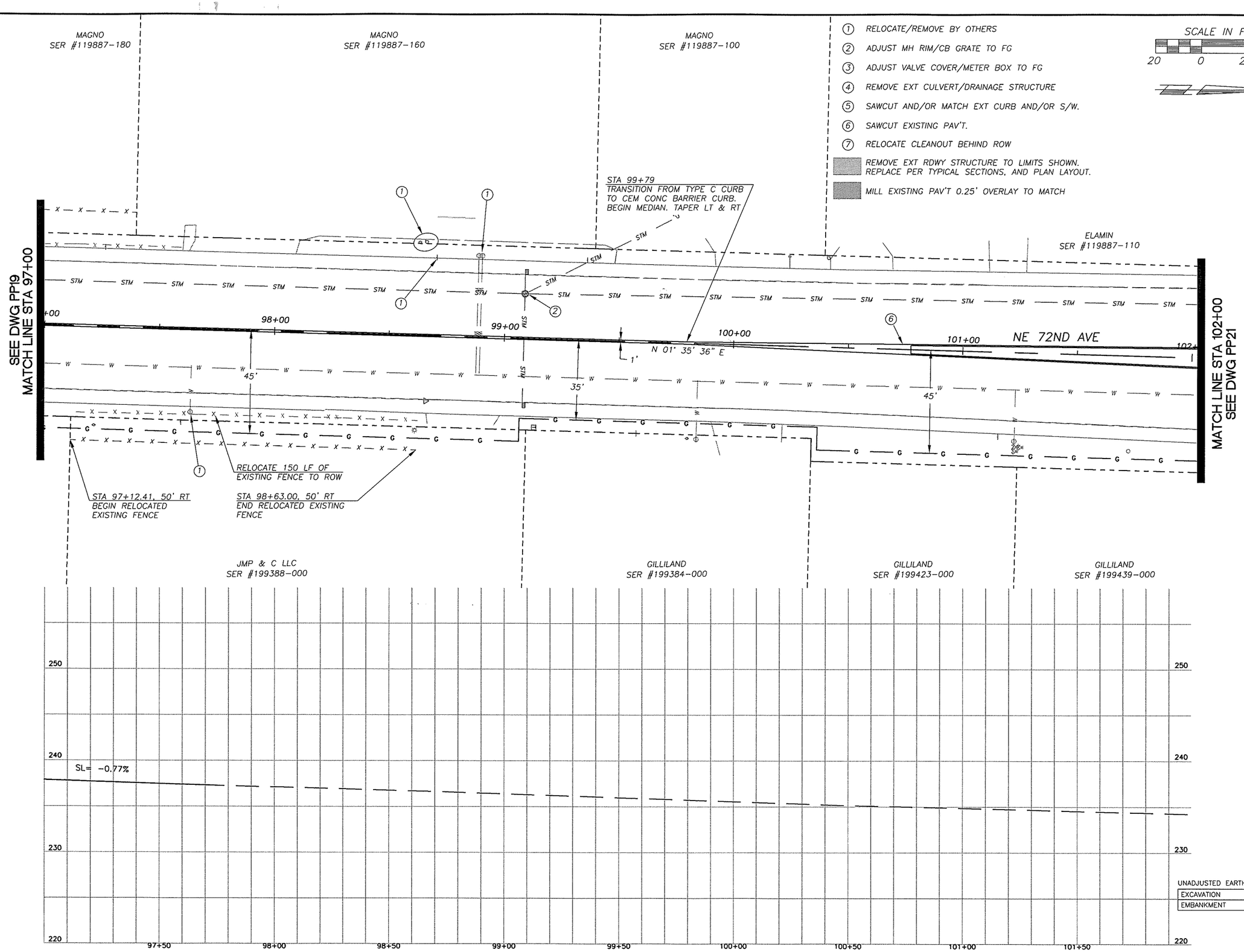
1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH

SCALE IN FEET
20 0 20 40



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	0
EMBANKMENT	0

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP20
SHEET	OF

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

STATE OF WASHINGTON
MICHAEL M. EMBREE
22809
REGISTERED PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 97+00 TO 102+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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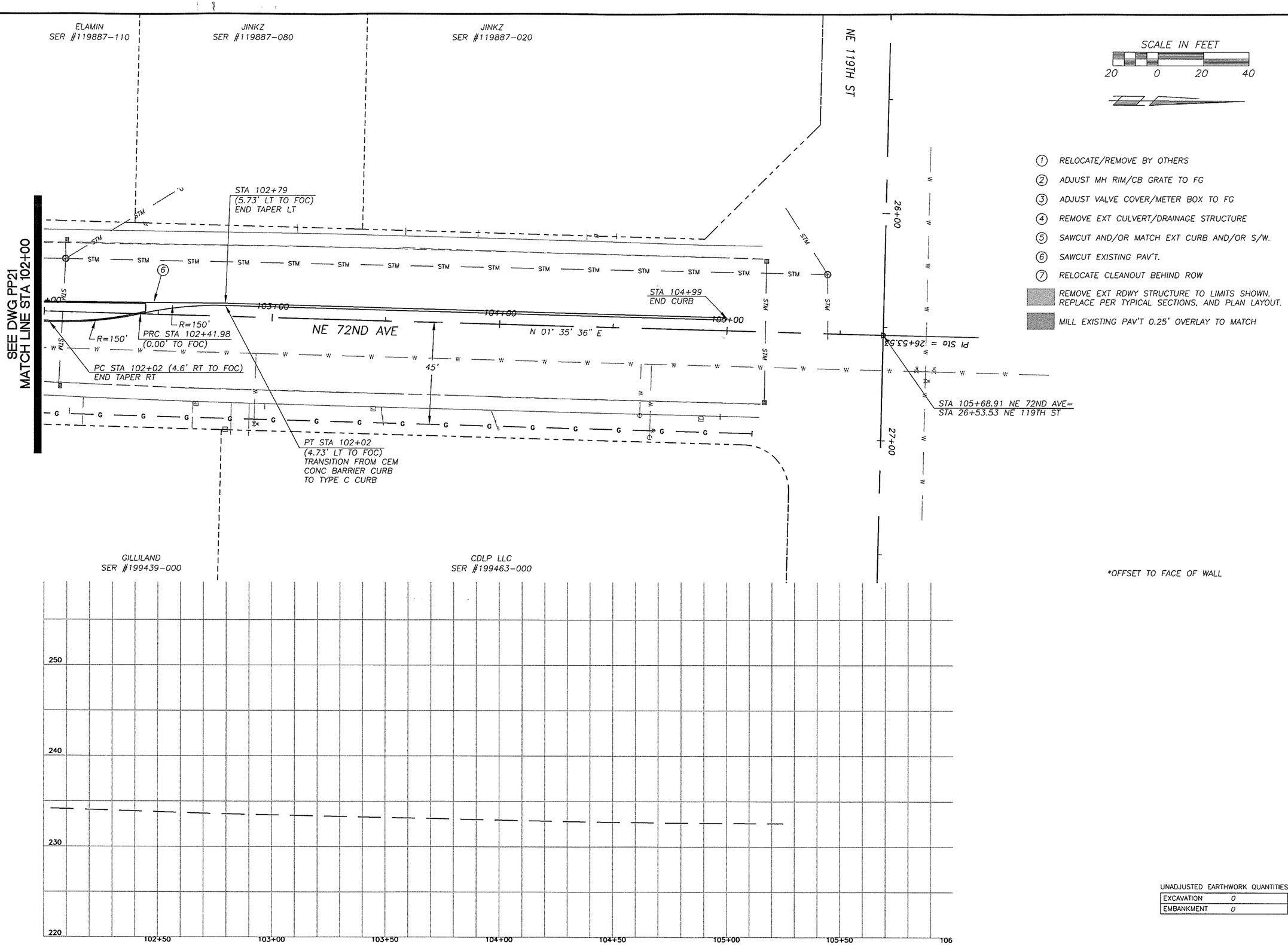

1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	0
EMBANKMENT	0

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP21
SHEET	OF

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

MICHAEL W. EMBREE
STATE OF WASHINGTON
BENJAMIN
23600
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
PLAN & PROFILE (STA 102+00 TO E.O.P.)

proud past, promising future
CLARK COUNTY
WASHINGTON

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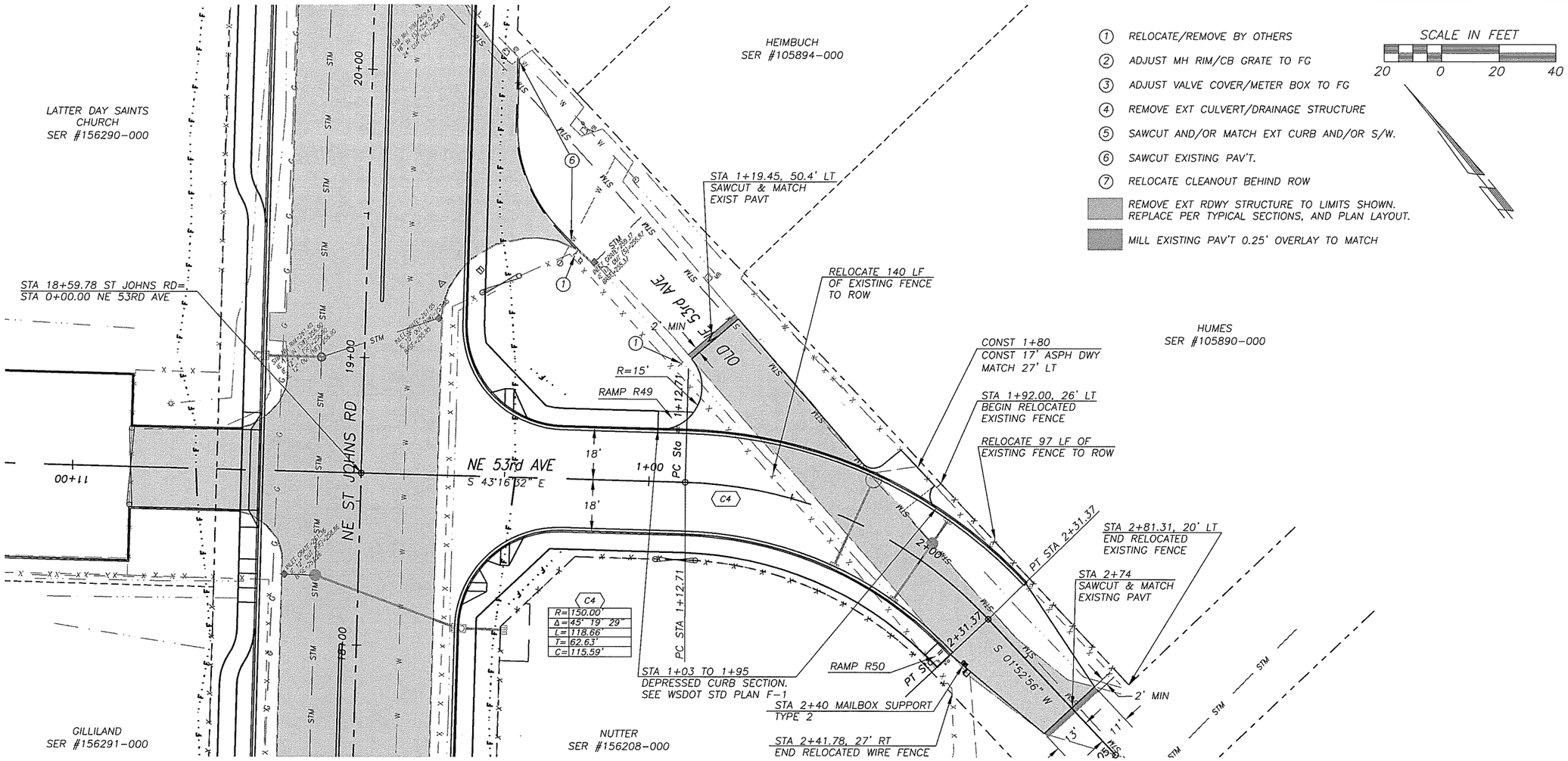
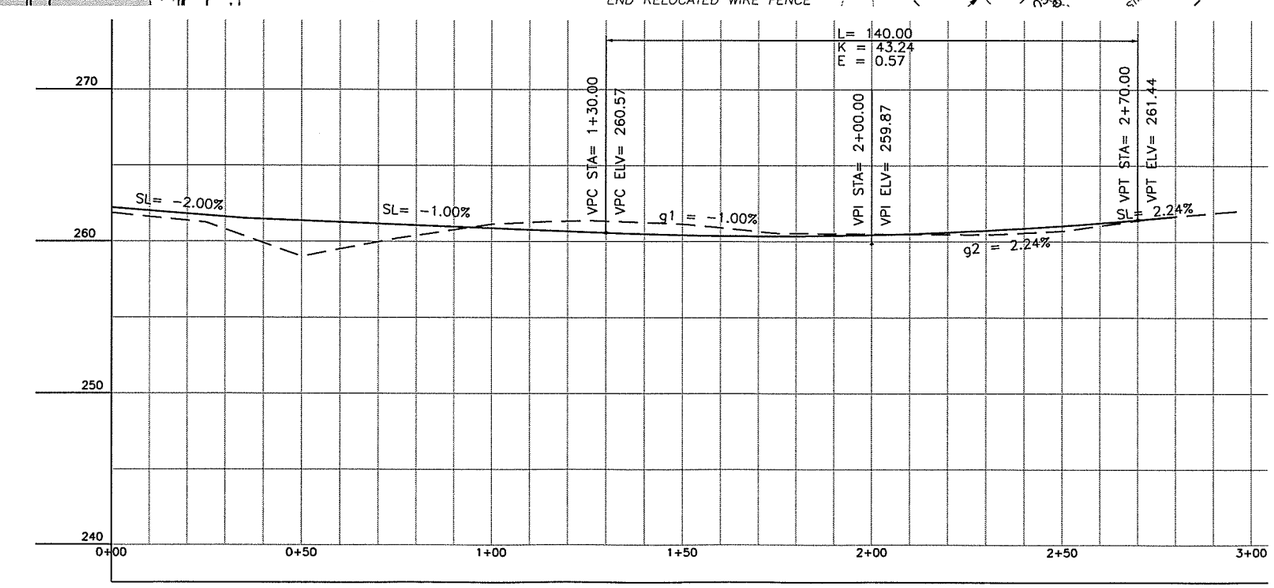


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	350
EMBANKMENT	20

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP22
SHEET	OF

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

MICHAEL M. EMBICK STATE OF WASHINGTON 29180 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
NE 53RD AVENUE
PLAN & PROFILE (STA 0+00 TO 3+00)

proud past, promising future

CLARK COUNTY
WASHINGTON

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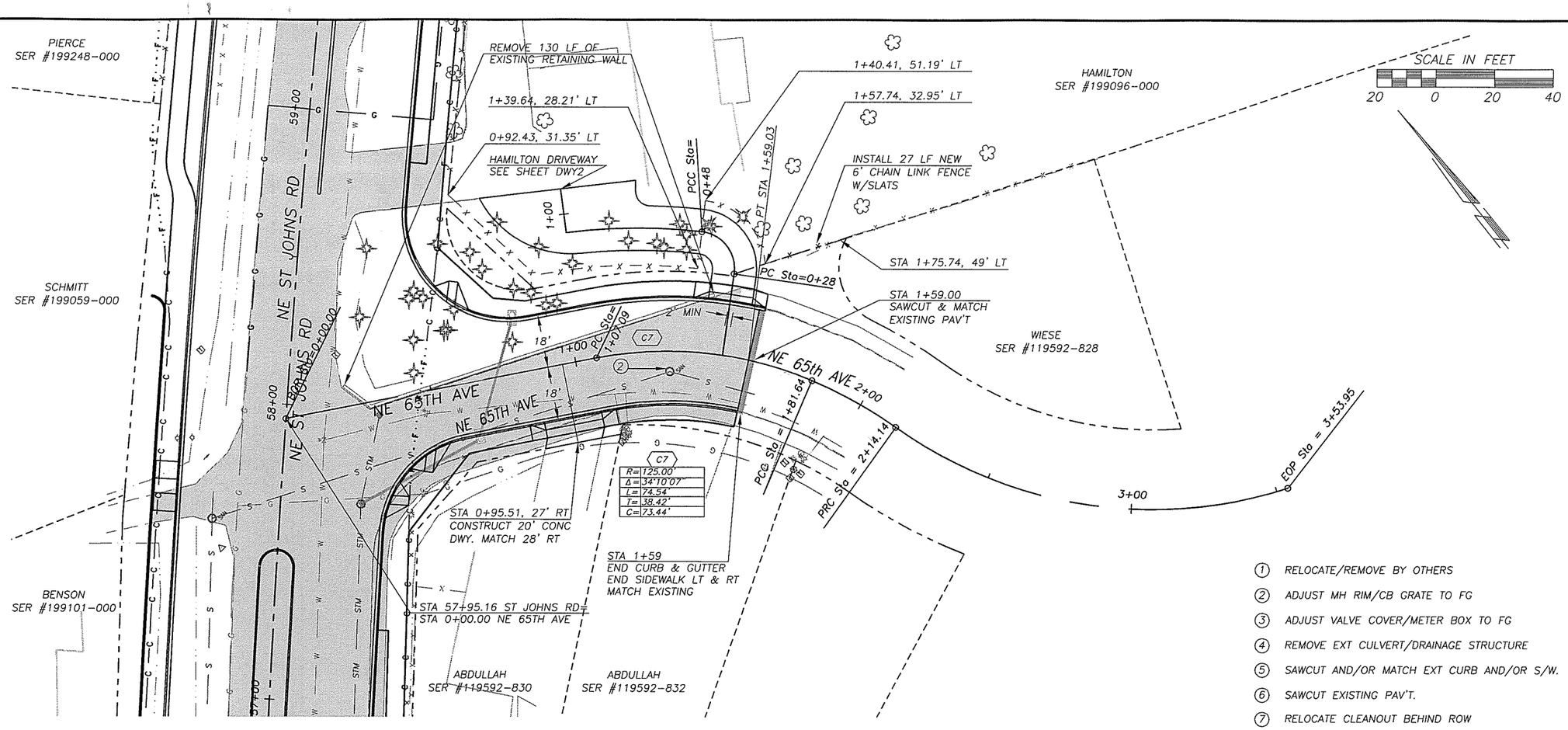
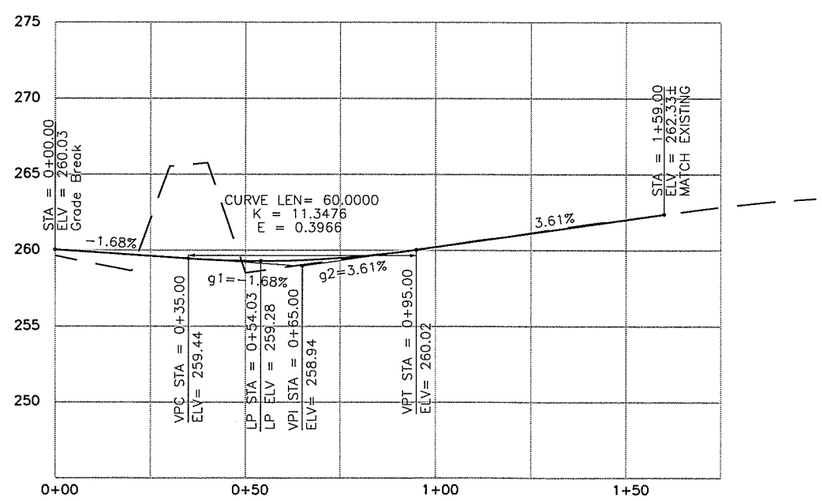


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH



NE 65TH AVE

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	760
EMBANKMENT	10

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	PP23
SHEET	OF

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

MICHAEL M. EMRICK STATE OF WASHINGTON 21591 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
NE 65TH AVENUE
PLAN & PROFILE (STA 0+00 TO 3+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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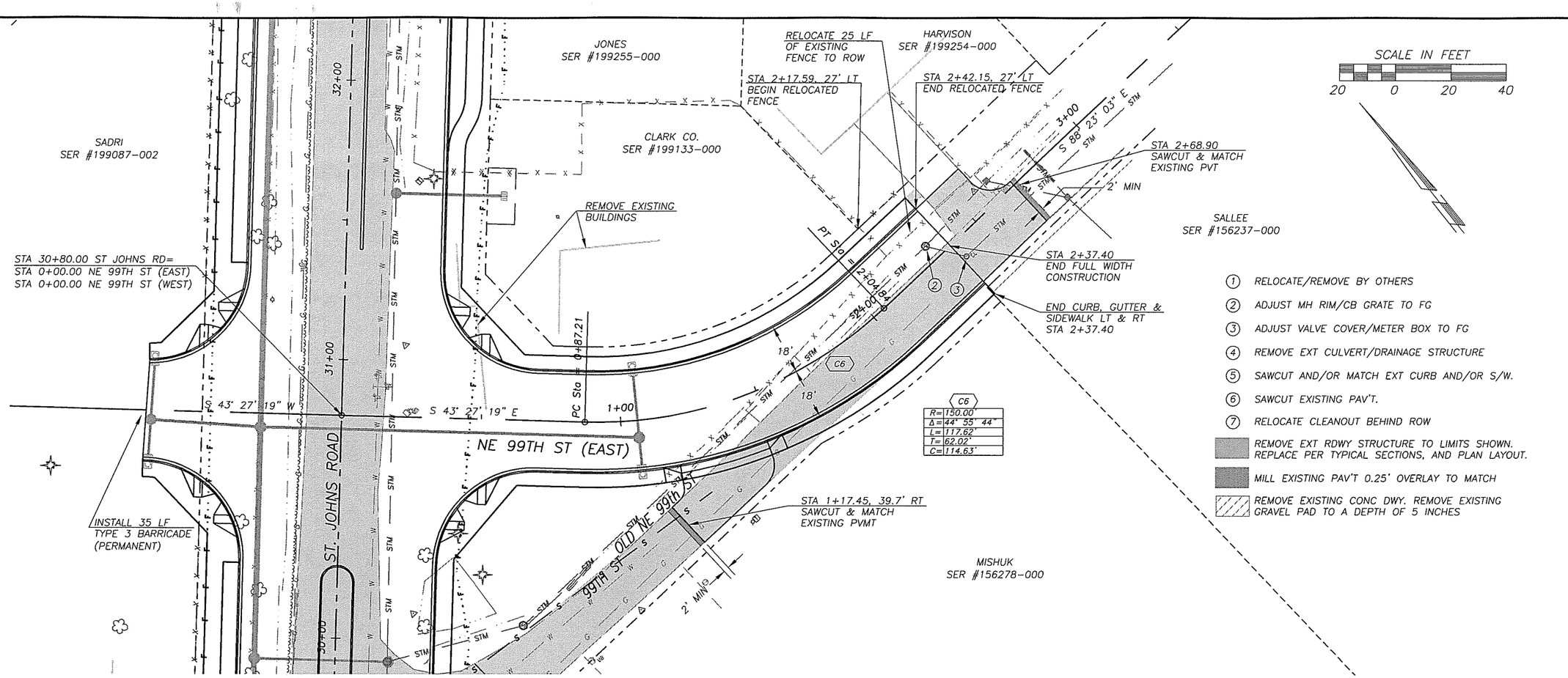

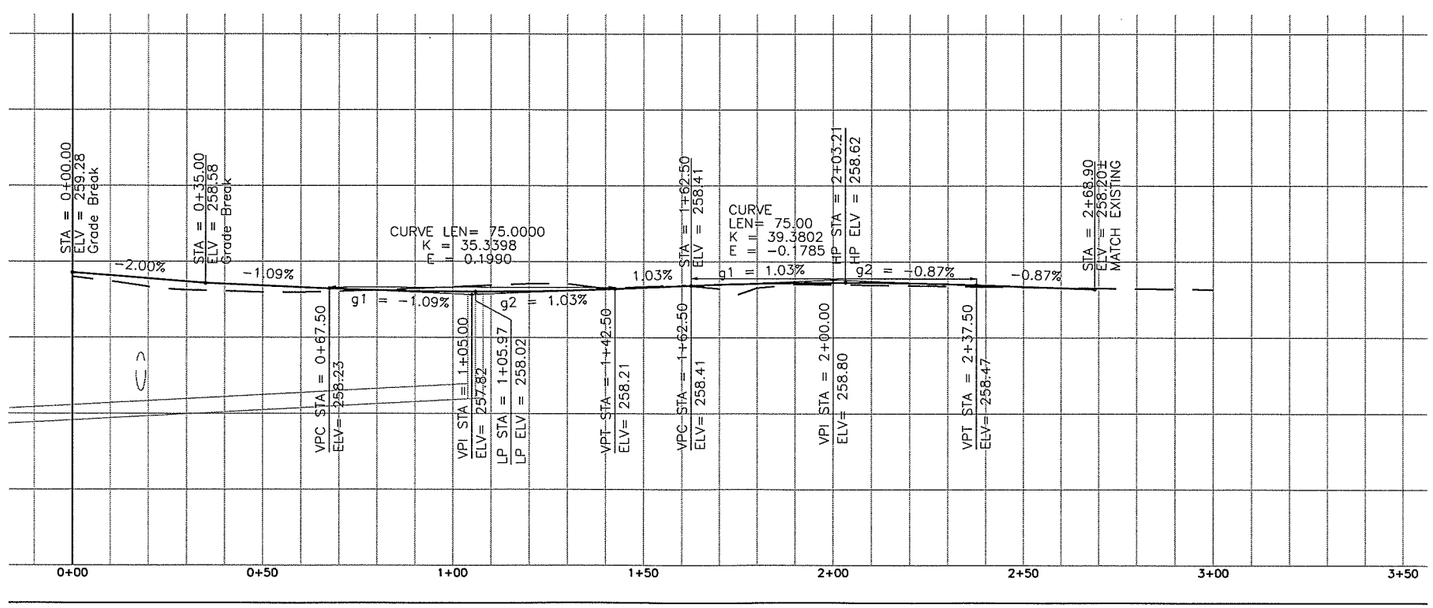

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	300
EMBANKMENT	10

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP24
SHEET	OF

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

STATE OF WASHINGTON MICHAEL M. EMBICK 21000 REGISTERED PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
NE 99TH STREET
PLAN & PROFILE (STA 0+00 TO 3+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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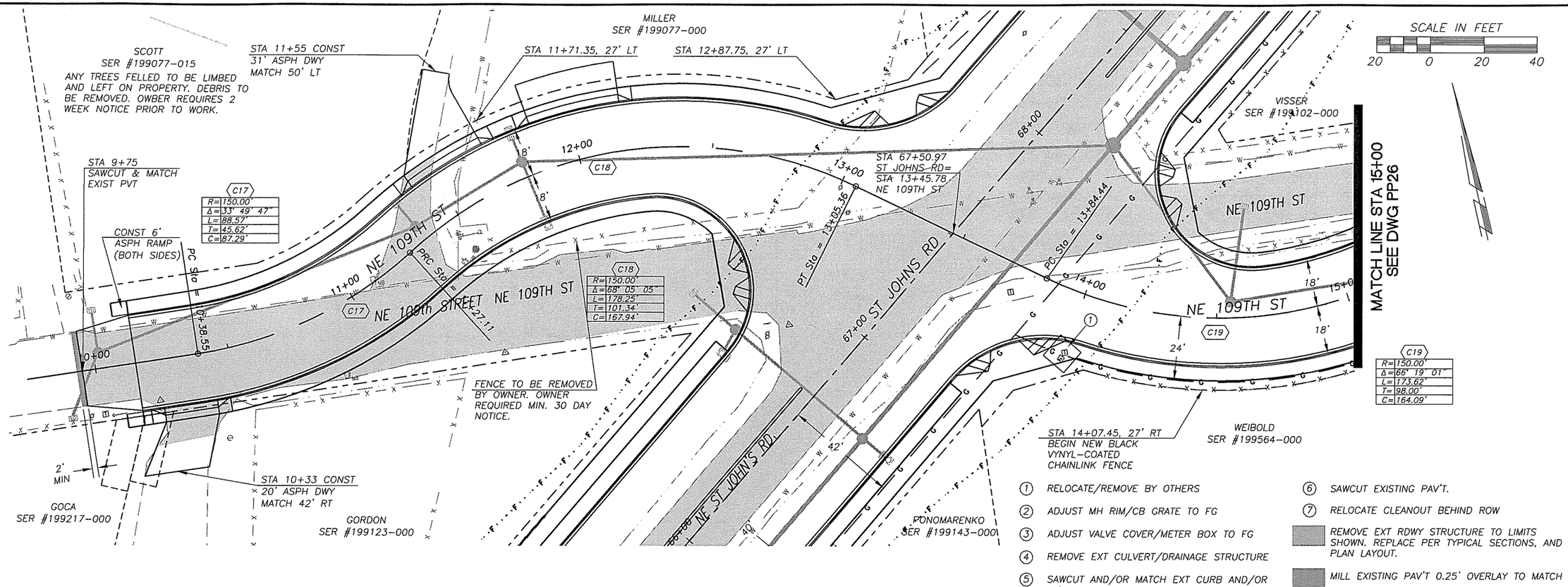
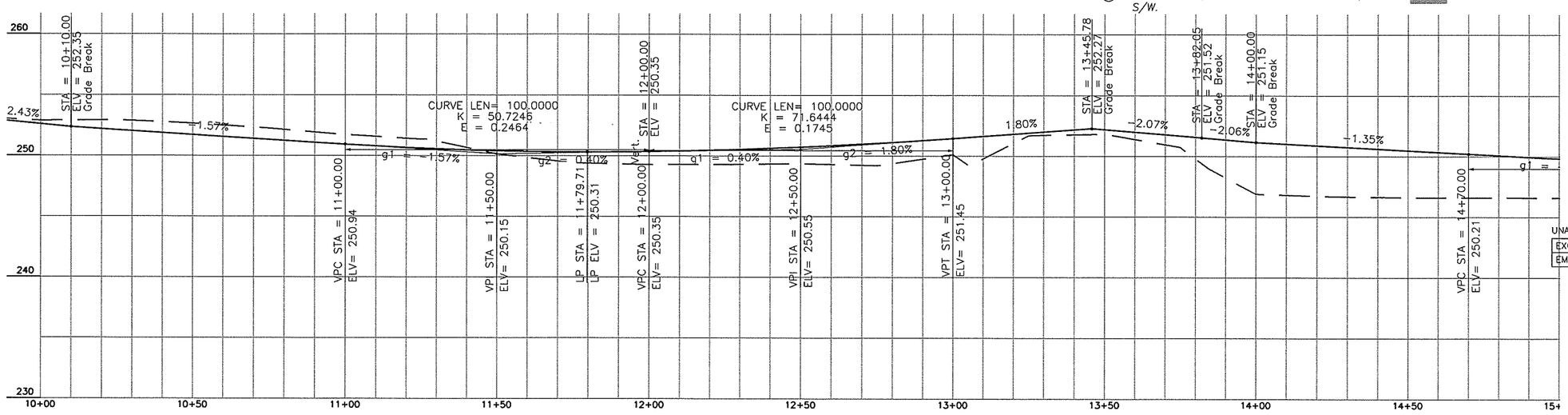


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

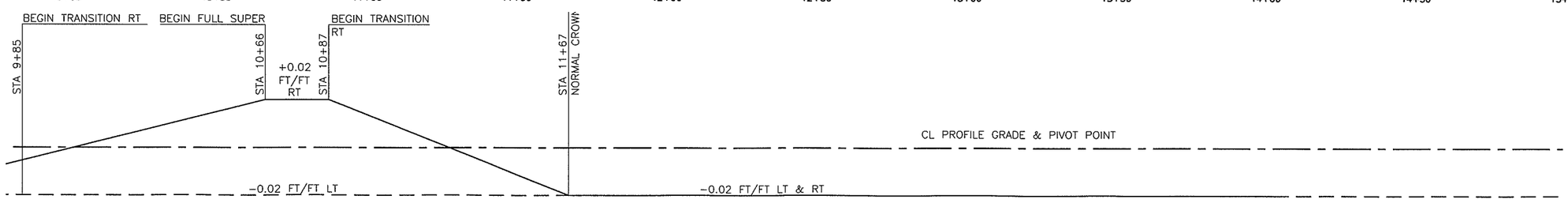
REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	410
EMBANKMENT	755



DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP25
SHEET	OF

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

STATE OF WASHINGTON MICHAEL M. EMRICK REGISTERED PROFESSIONAL ENGINEER 36260
EXPIRES MAY 20, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
NE 109TH STREET
PLAN & PROFILE (STA 10+00 TO 15+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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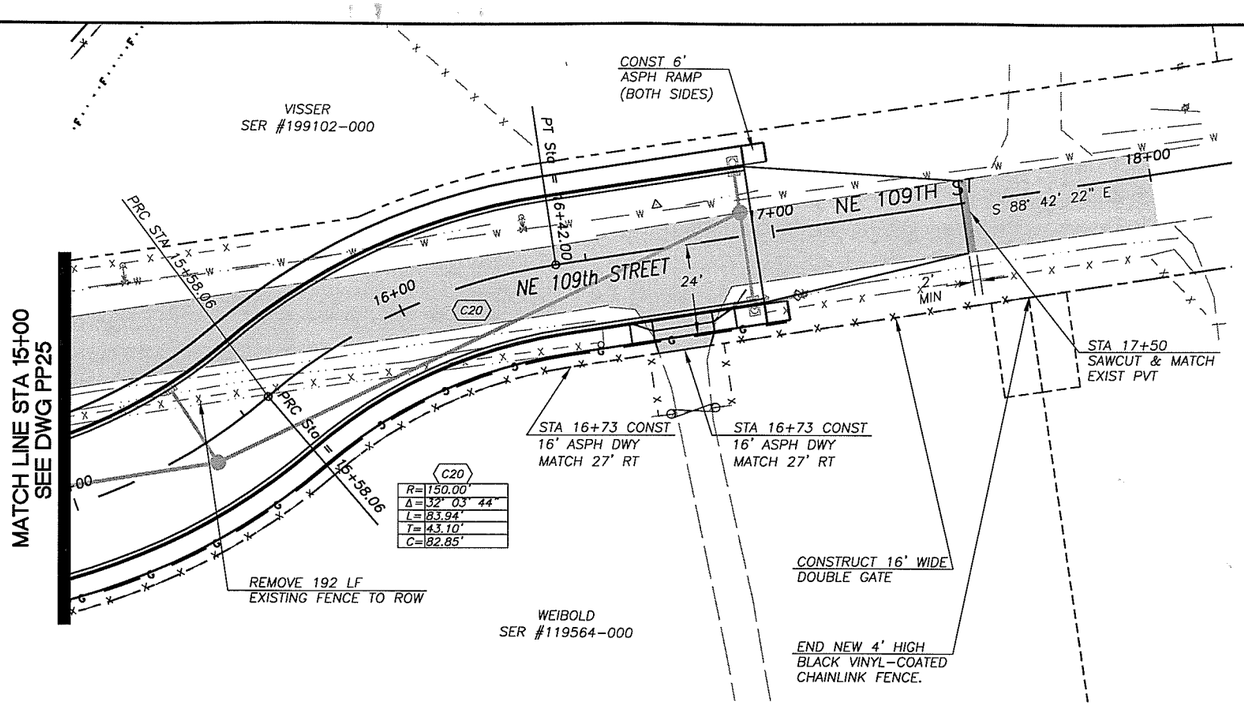


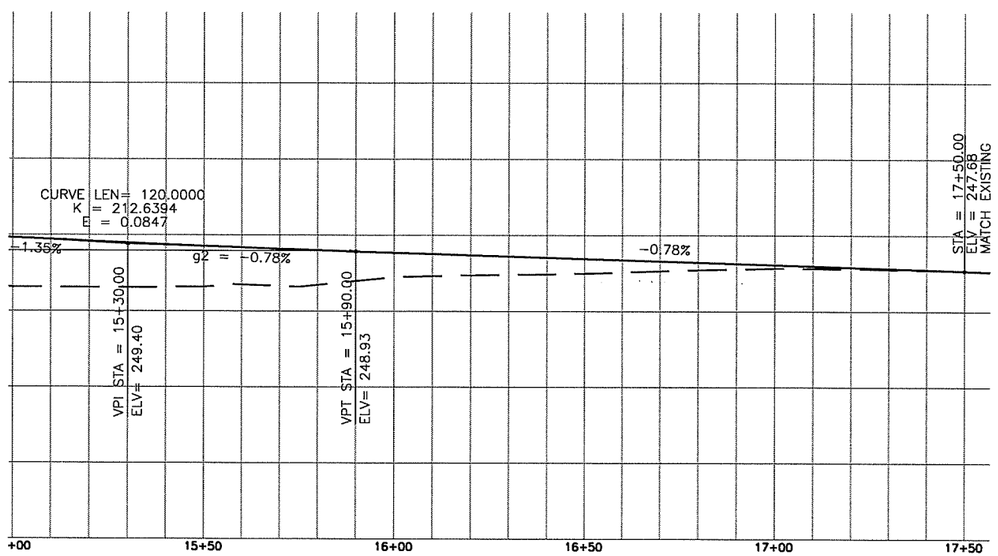
SCALE IN FEET

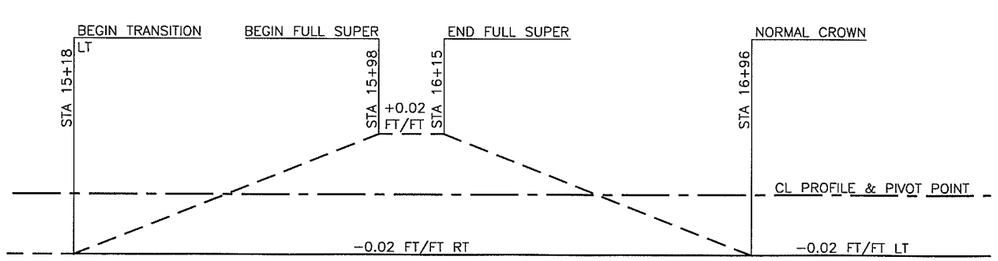
20 0 20 40

1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.
6. SAWCUT EXISTING PAV'T.
7. RELOCATE CLEANOUT BEHIND ROW

REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS, AND PLAN LAYOUT.

MILL EXISTING PAV'T 0.25' OVERLAY TO MATCH





UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	80
EMBANKMENT	520

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	PP26
SHEET	OF

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

MICHAEL M. EMRICK STATE OF WASHINGTON 38382 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAR. 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST.JOHNS RD (NE 50TH TO NE 72ND)
NE 109TH STREET
PLAN & PROFILE (STA 15+00 TO 18+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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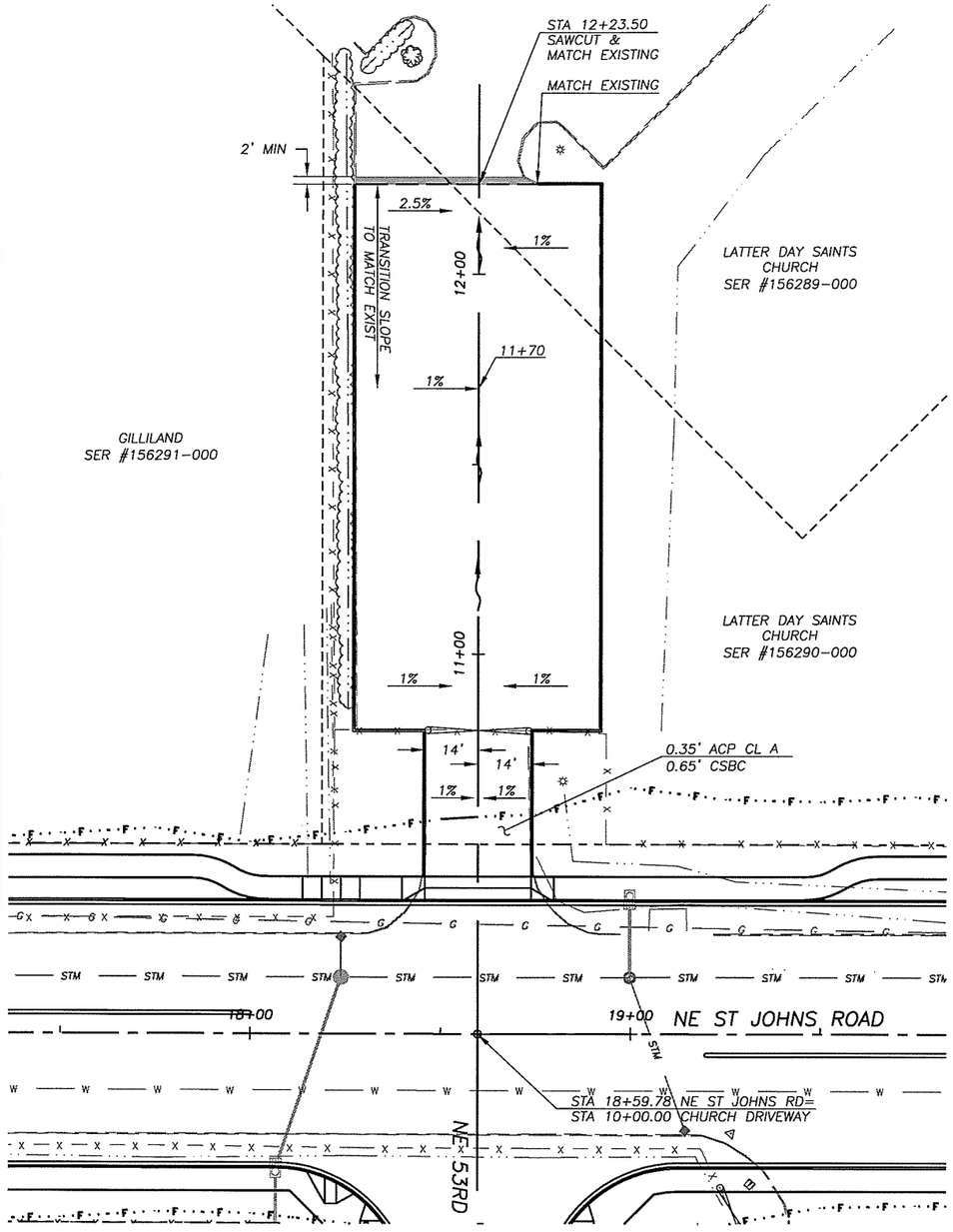
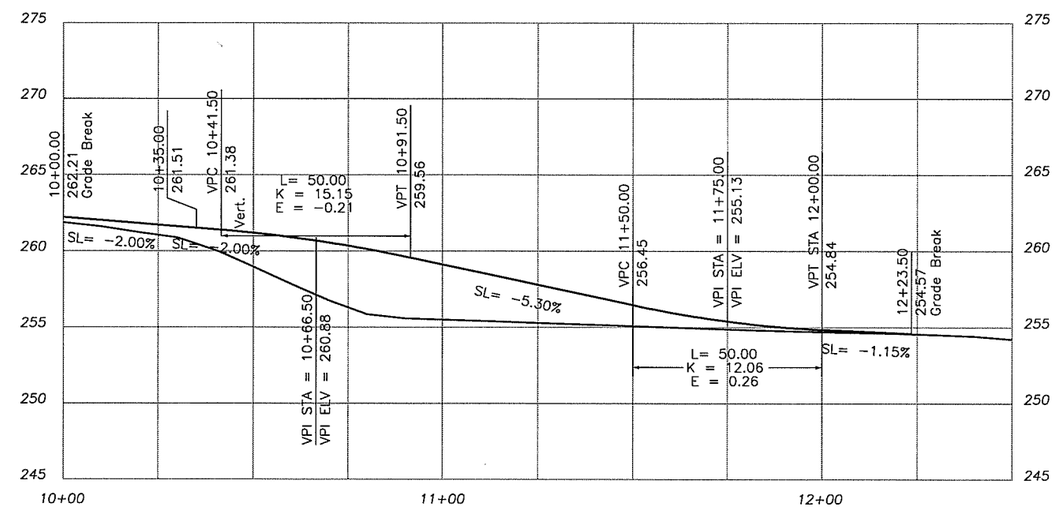
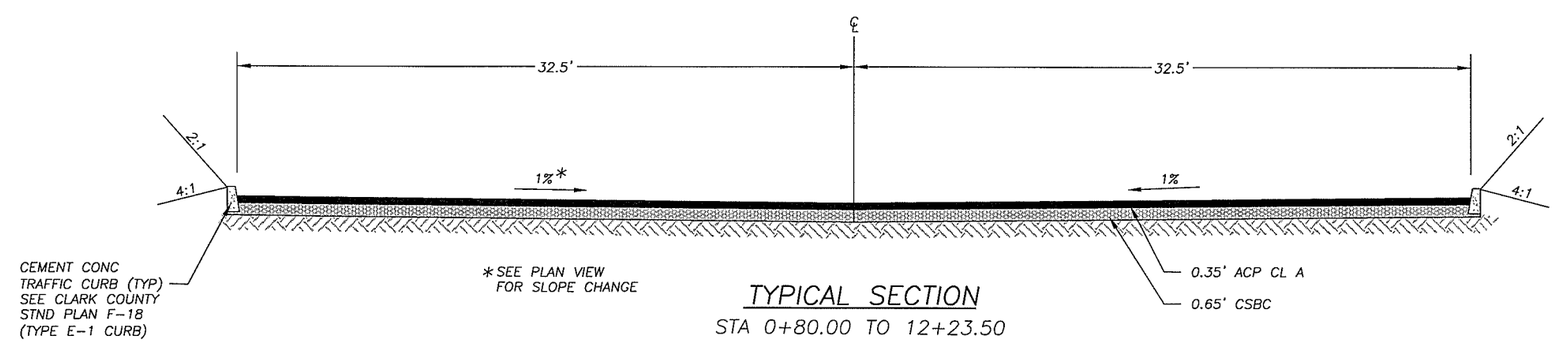


CURCH PARKING LOT



DRIVEWAY PROFILE



TYPICAL SECTION

STA 0+80.00 TO 12+23.50

SCALE IN FEET

20 0 20 40

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	NA
DATE	3/20/04
DWG:	DWY1
SHEET	OF

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

STATE OF WASHINGTON MICHAEL A. LEBECK 29130 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRIVEWAY PLANS

proud past, promising future
CLARK COUNTY WASHINGTON

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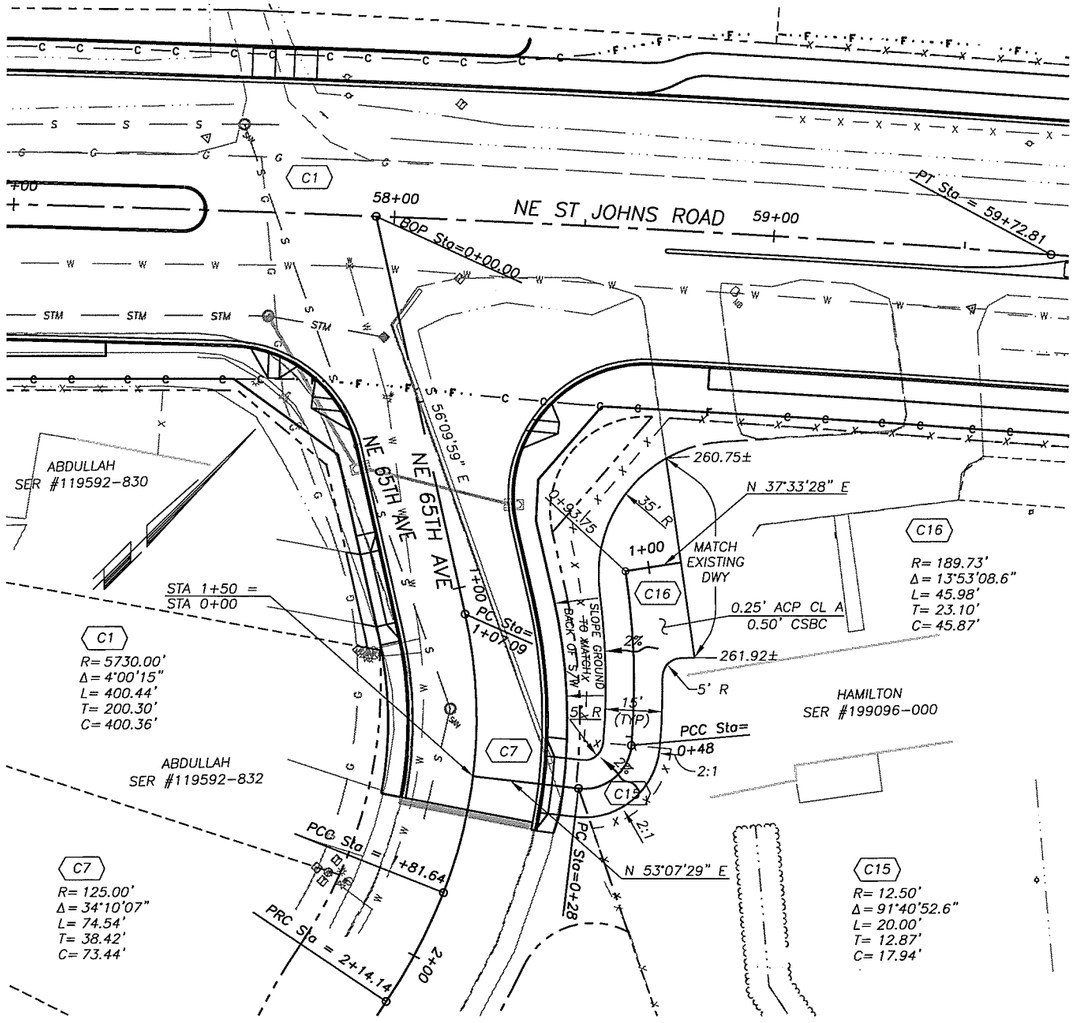
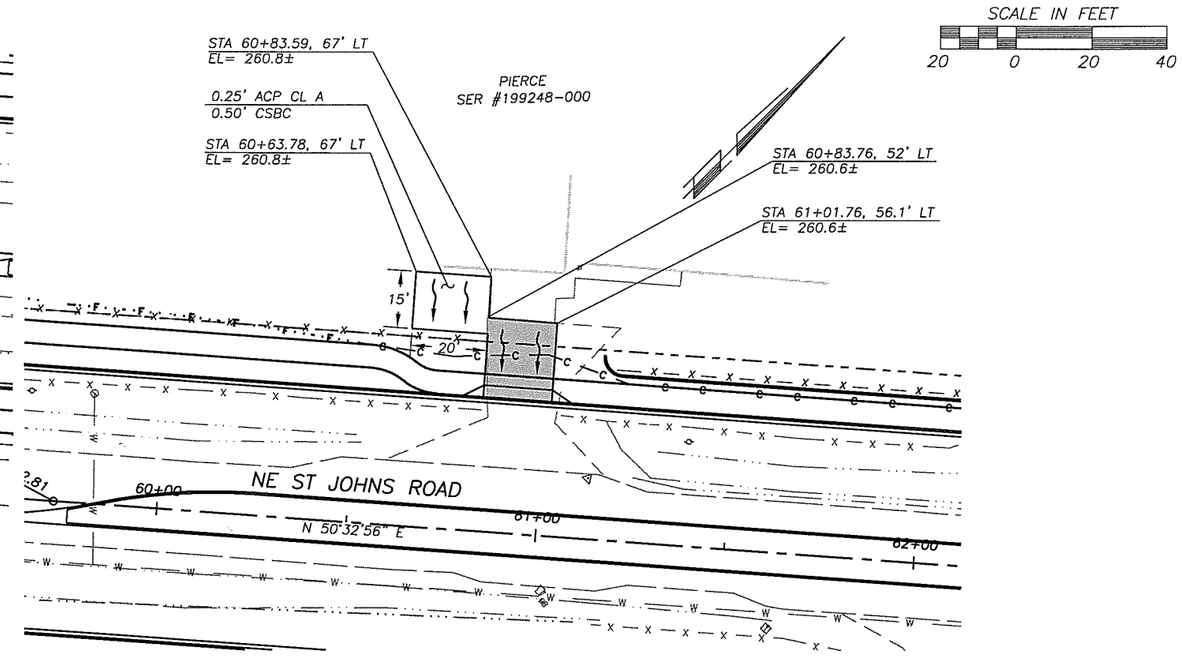
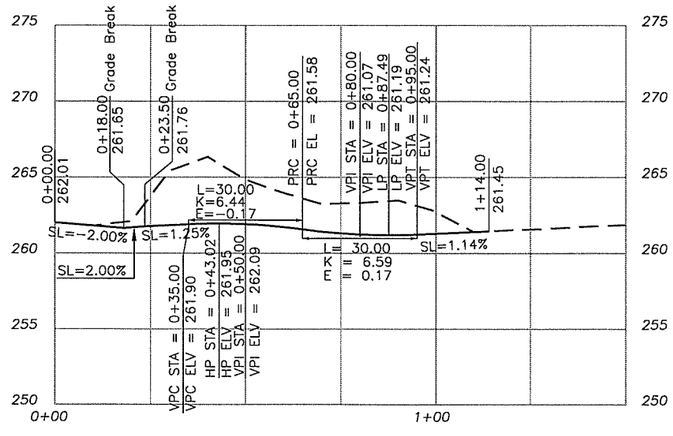


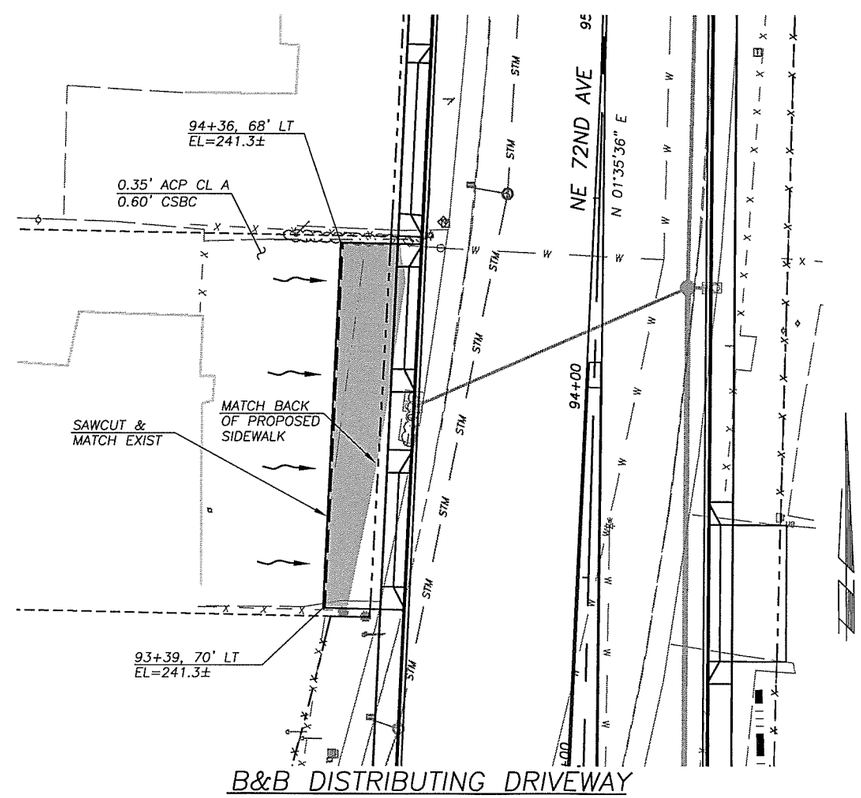
HAMILTON DRIVEWAY



PIERCE DRIVEWAY



HAMILTON DRIVEWAY PROFILE



B&B DISTRIBUTING DRIVEWAY

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	NA
DATE	3/29/04
DWG:	DWY2
SHEET	OF

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

STATE OF WASHINGTON M. E. CARLOCK 26030 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 25, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRIVEWAY PLANS

proud past, promising future
CLARK COUNTY WASHINGTON

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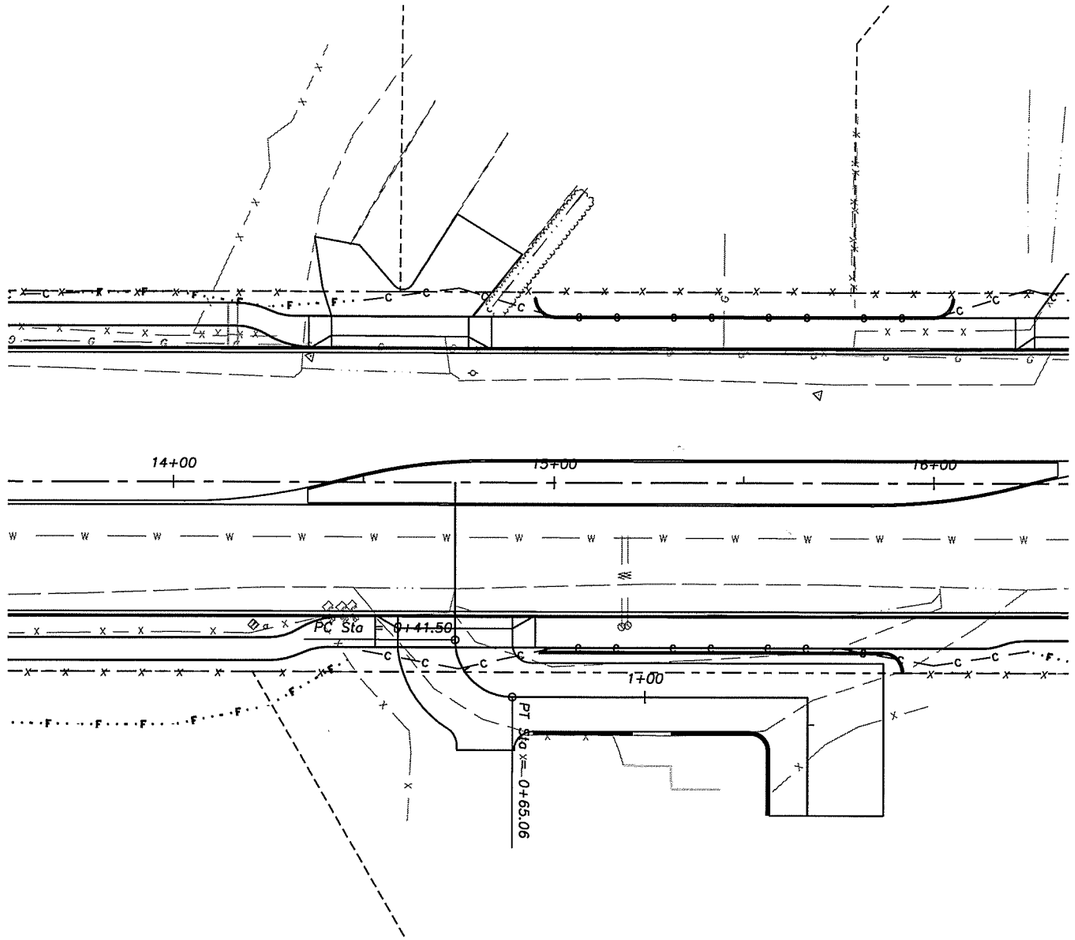
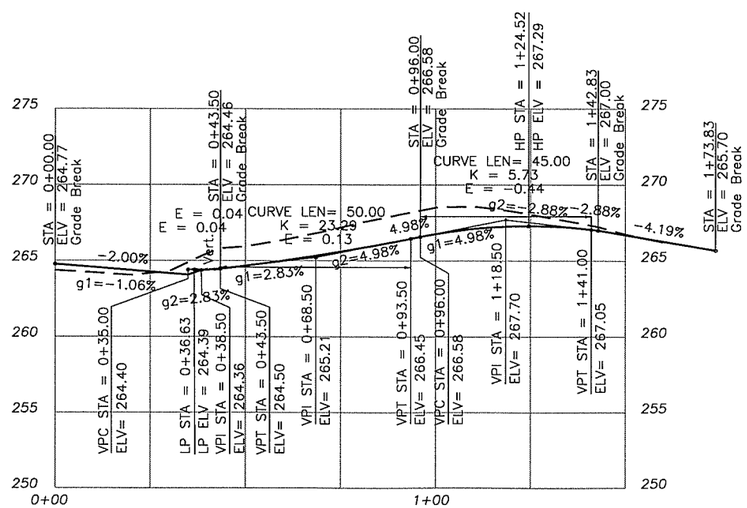


NUTTER DRIVEWAY



NUTTER DRIVEWAY PROFILE

SCALE IN FEET

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DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	NA
DATE	11/11/04
DWG:	DW13
SHEET	OF

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

MICHAEL M. EMRICK STATE OF WASHINGTON 22000 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRIVEWAY PLANS

proud past, promising future

CLARK COUNTY
WASHINGTON

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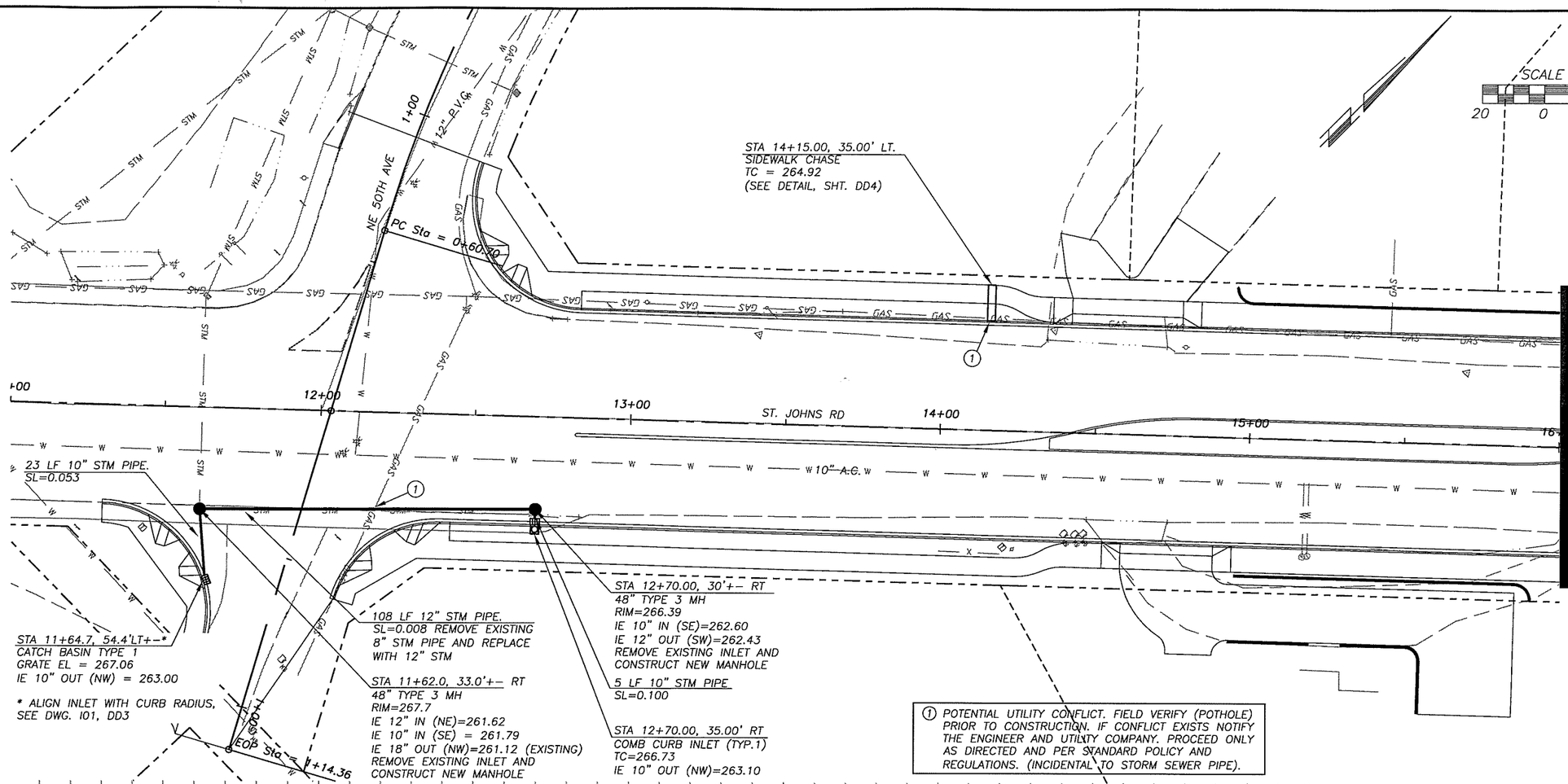

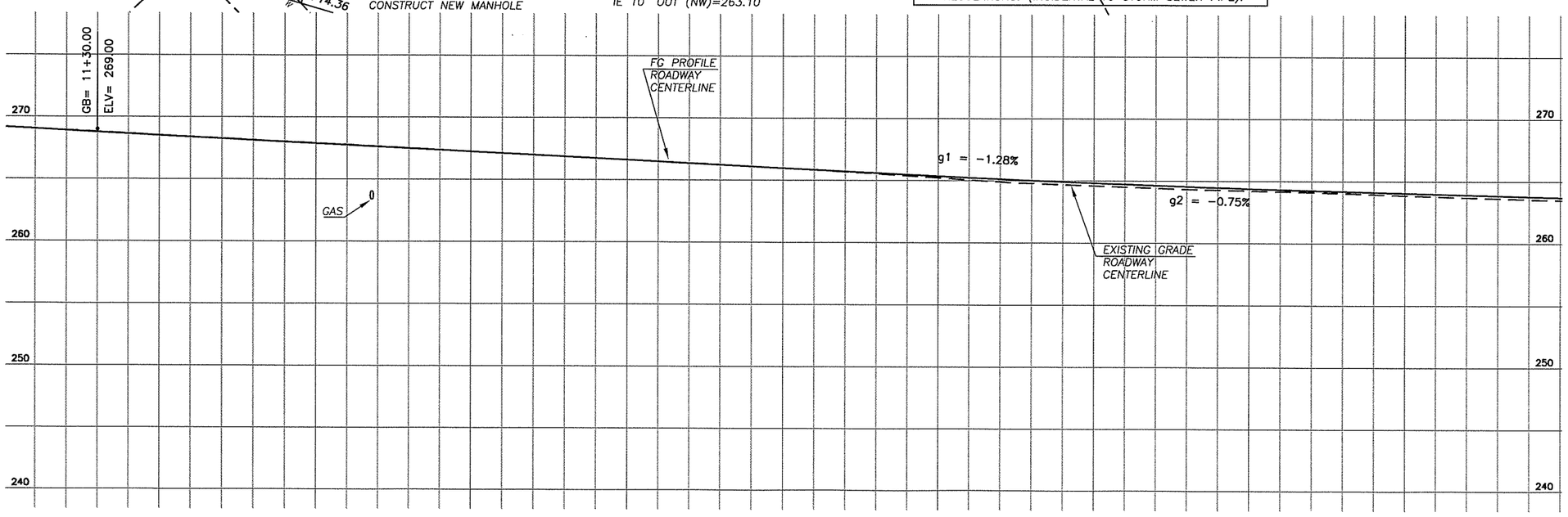

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DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP01
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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STATE OF WASHINGTON
MILLER
STEVEN E. MILLER
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

proud past, promising future
CLARK COUNTY
WASHINGTON

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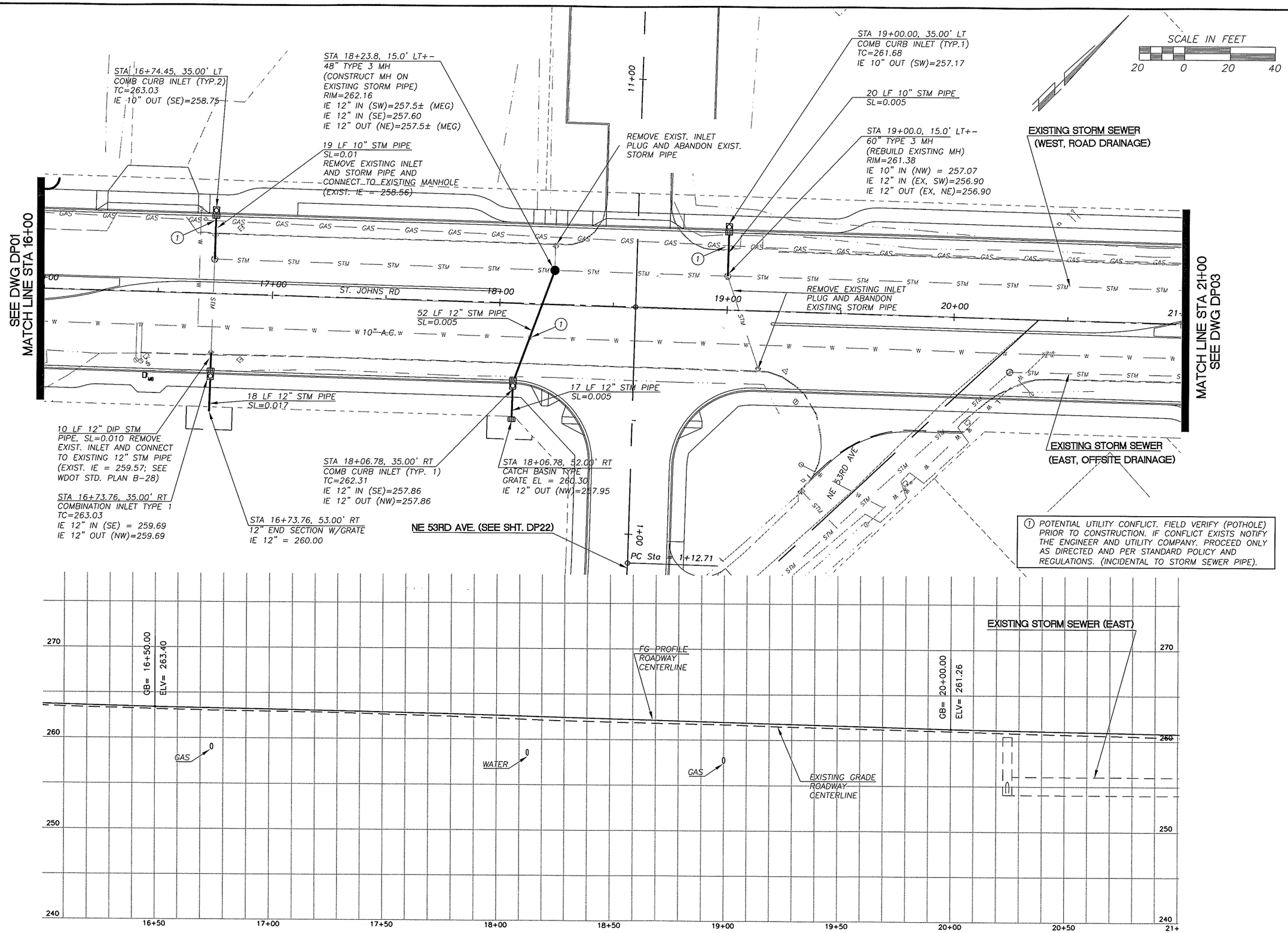

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DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP02
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MILTON E. BOGATEN
11148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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CLARK COUNTY
WASHINGTON

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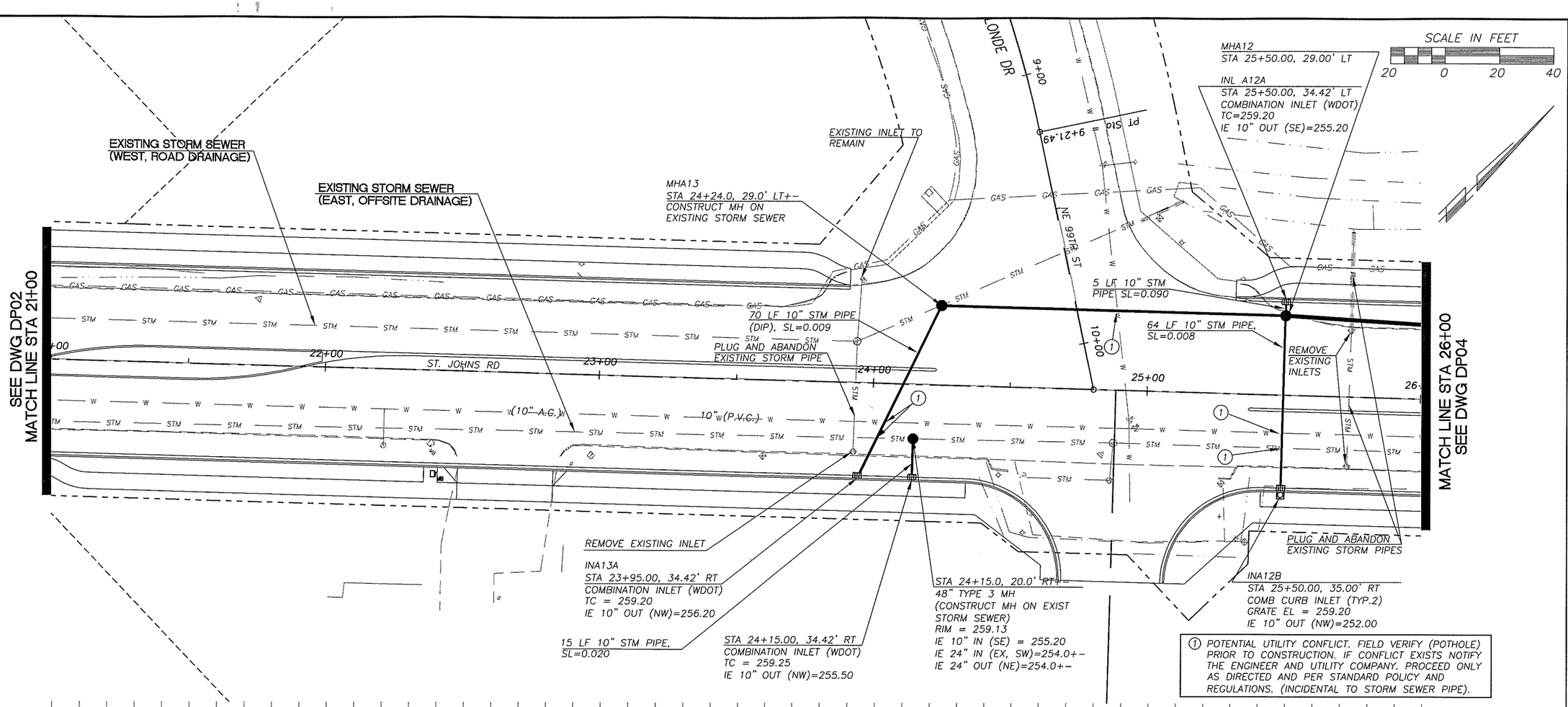

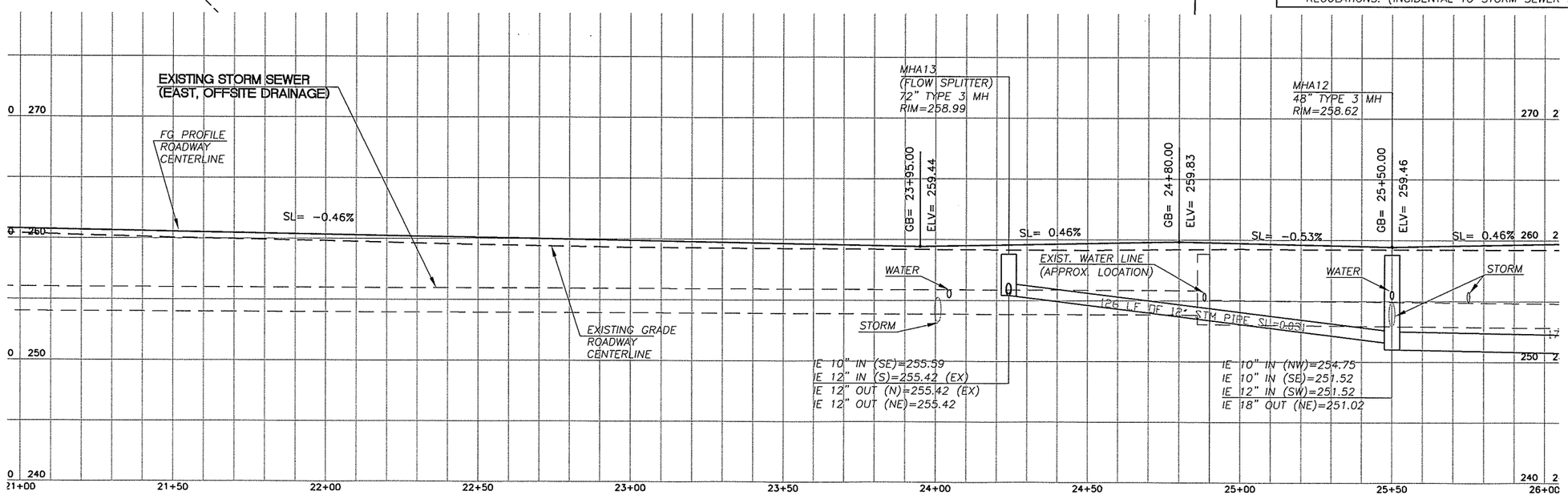

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP03
SHEET	OF

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STATE OF WASHINGTON
MILLER
31148
PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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CLARK COUNTY
WASHINGTON

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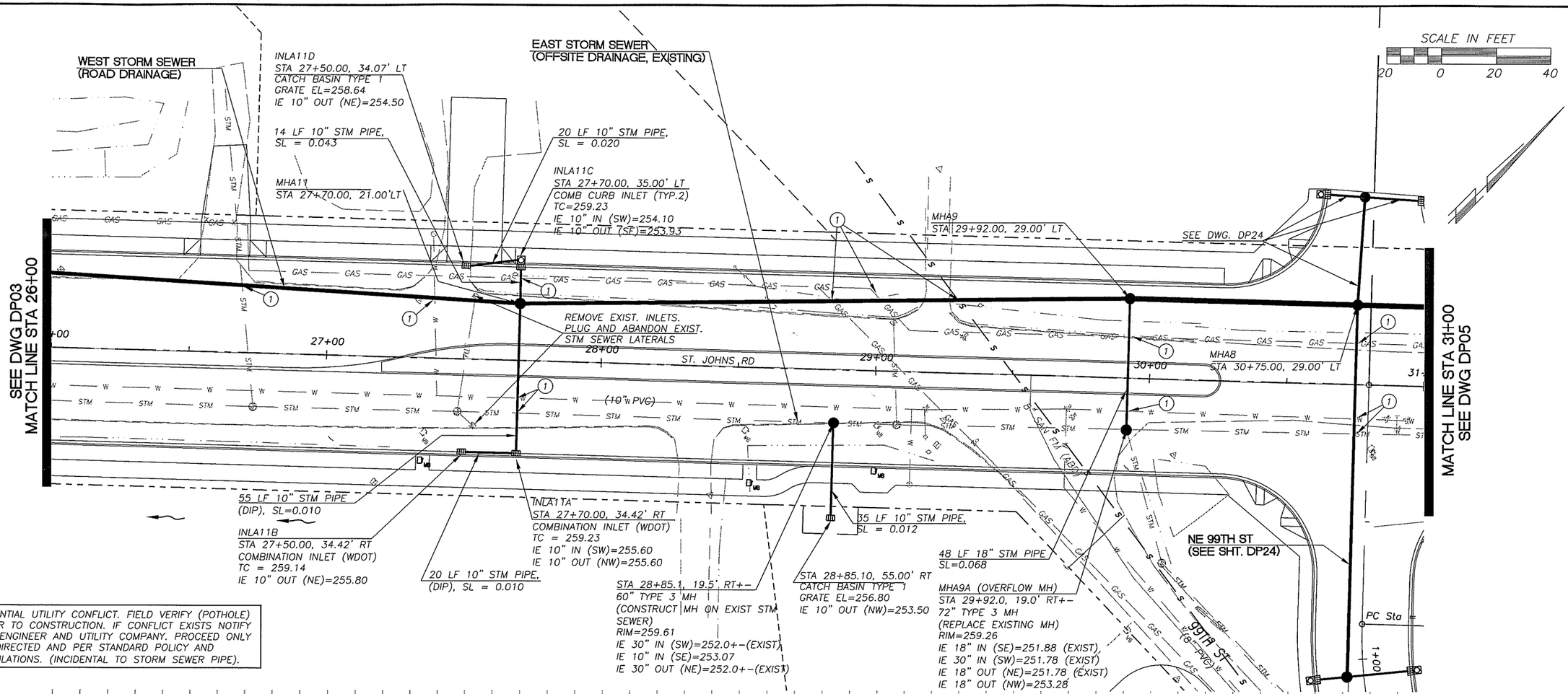
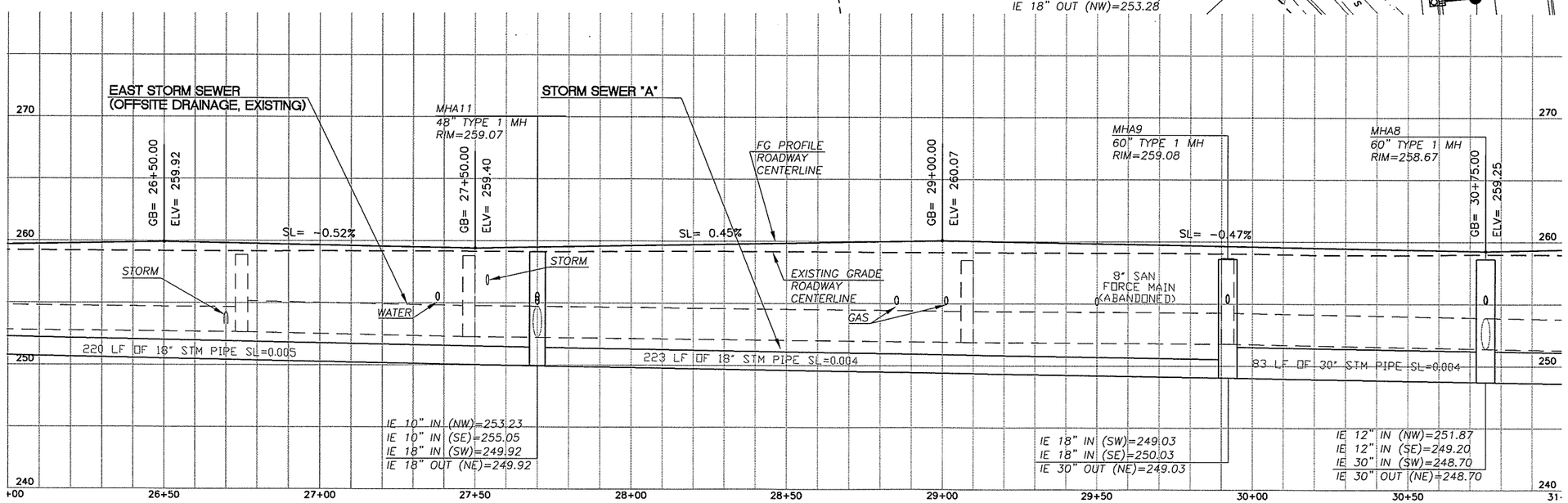


① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).



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DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP04
SHEET	OF

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STATE OF WASHINGTON
MICHAEL W. MATHISON
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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CLARK COUNTY
WASHINGTON

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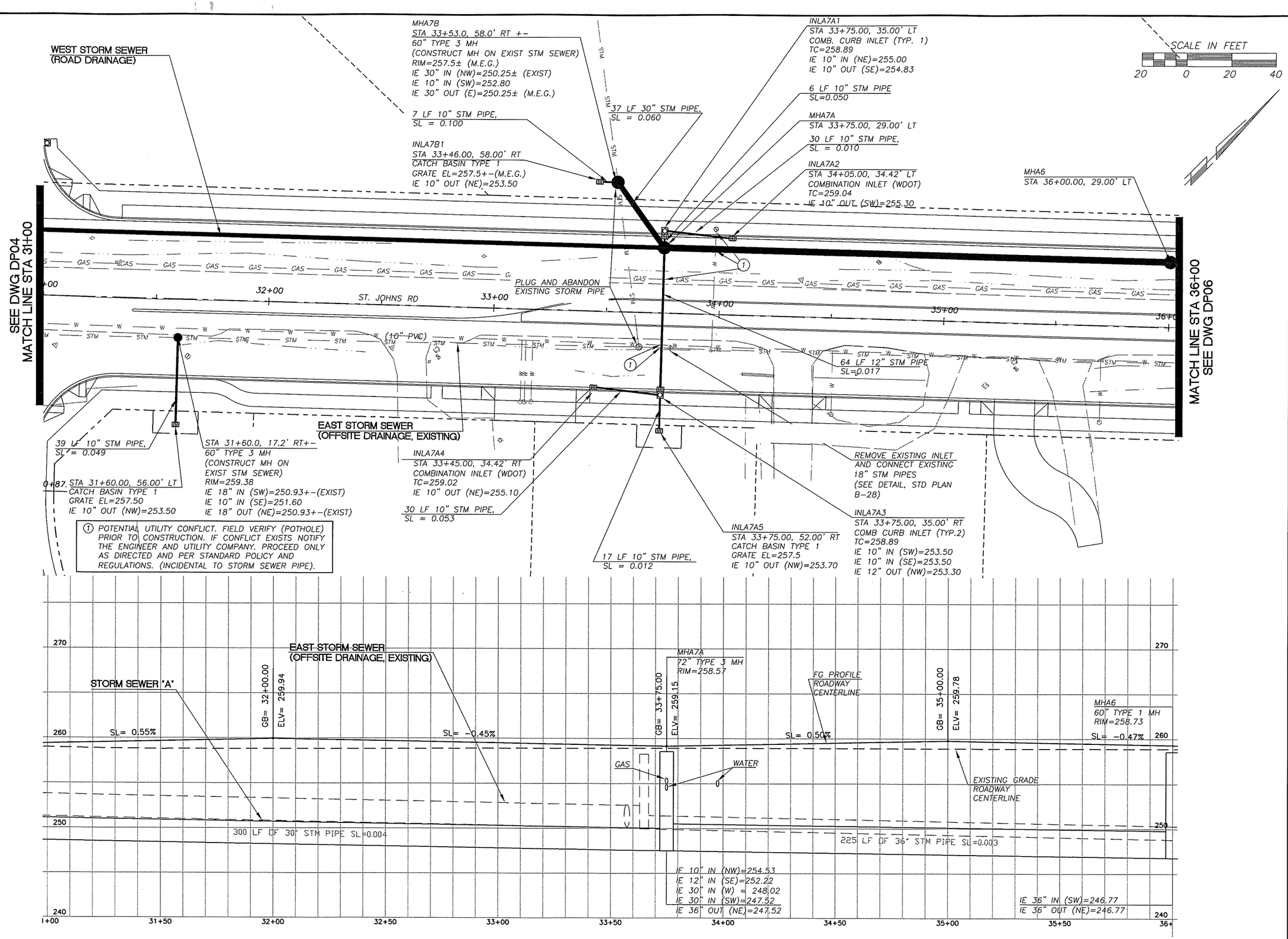

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP05
SHEET	OF

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MILNE
STEVEN
PROFESSIONAL ENGINEER
EXPIRES JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE PLAN (STA 31+00 TO 36+00)

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CLARK COUNTY
WASHINGTON

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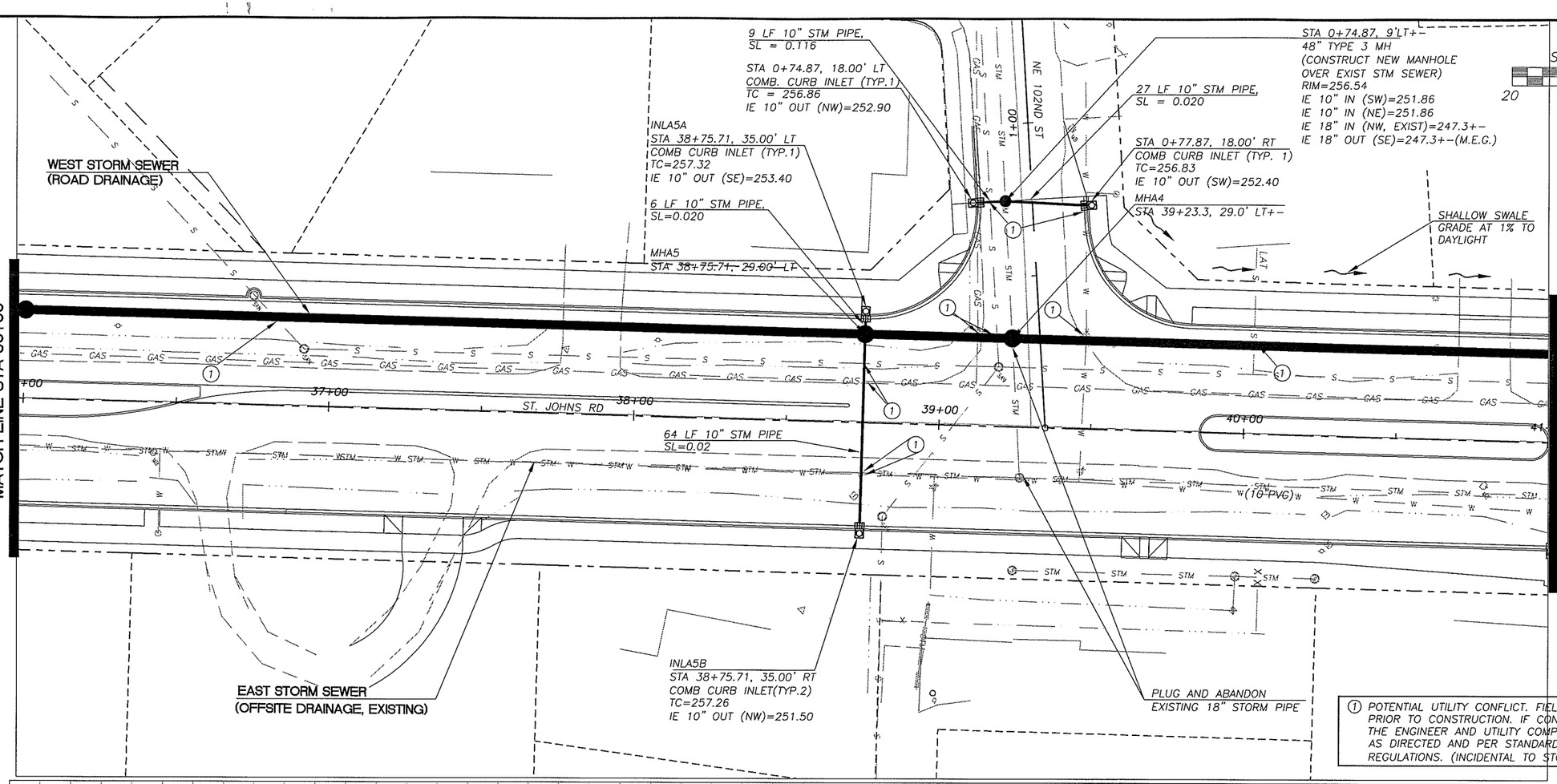
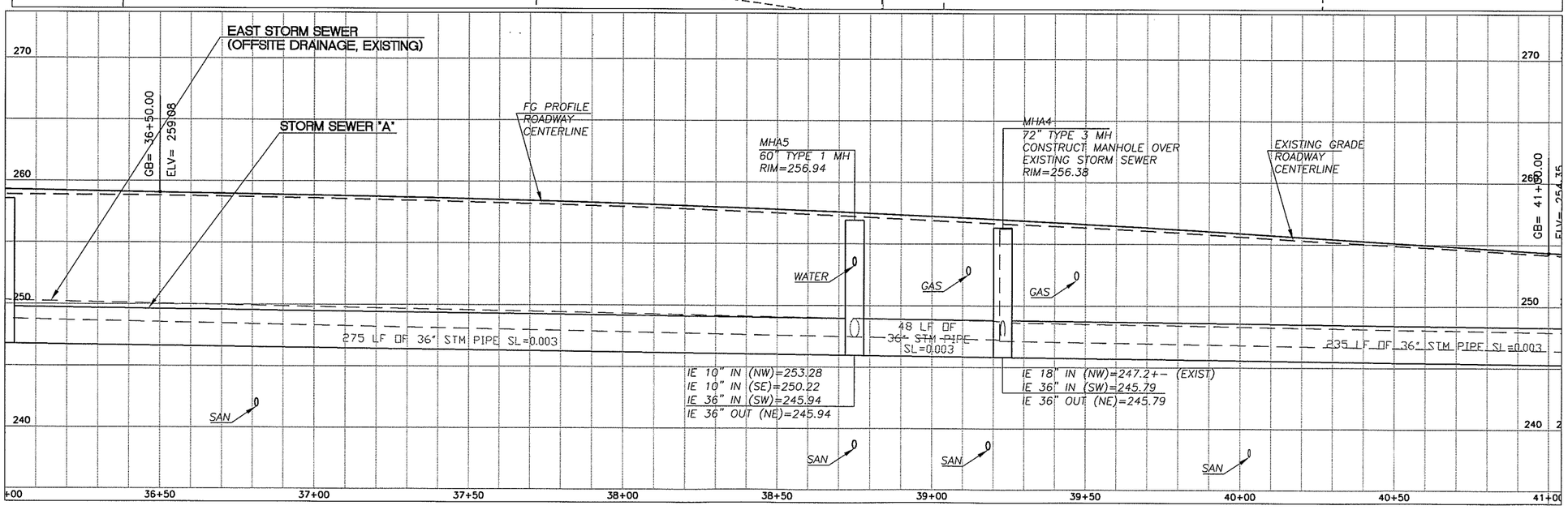


① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).



DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP06
SHEET	OF

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MICHAEL D. WASHINGTON
STATE OF WASHINGTON
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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CLARK COUNTY
WASHINGTON

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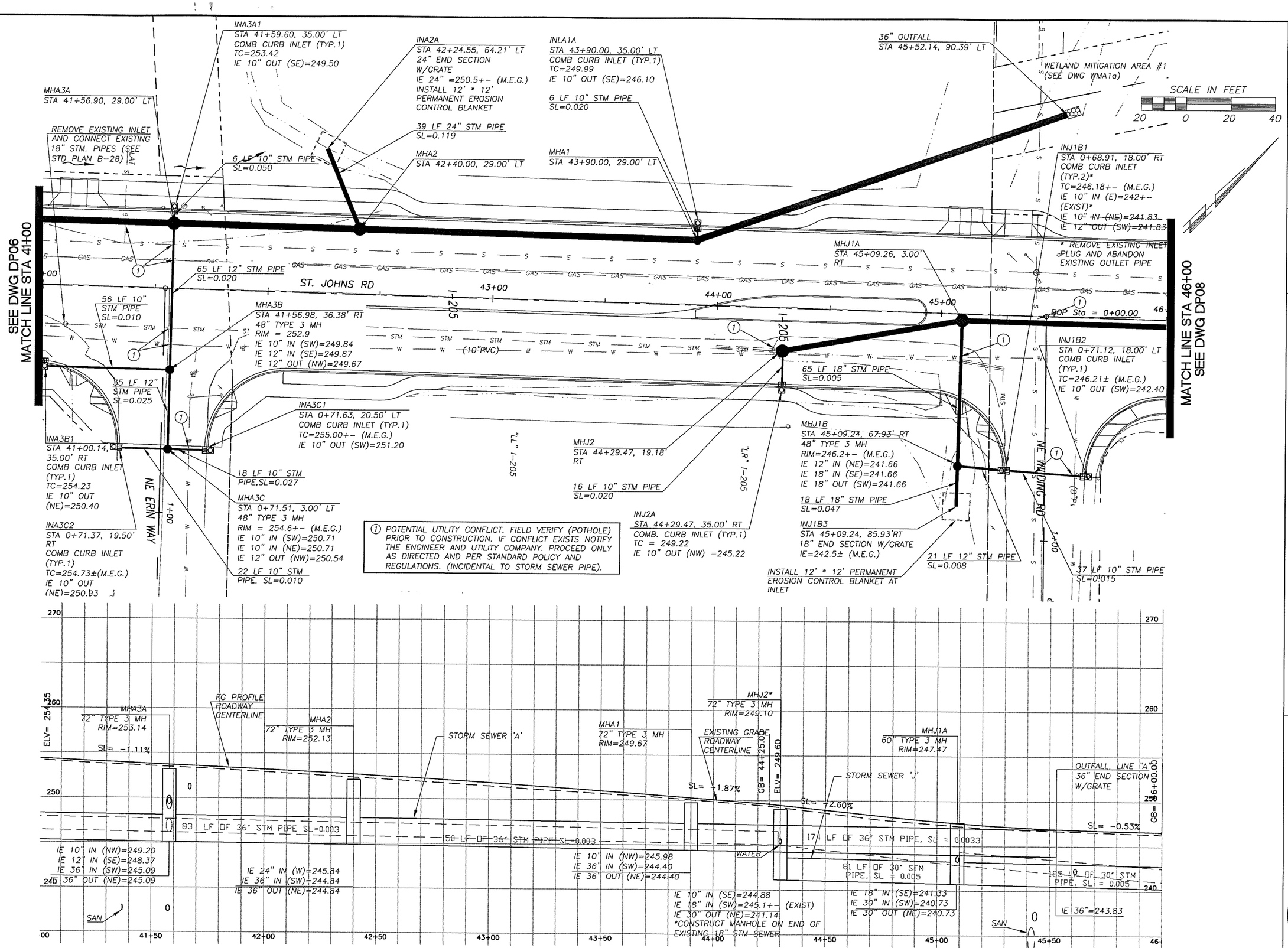

DESIGNED MME/JM
DRAWN BAK
CRP 301422
HOR. 1"=20'
VERT. 1"=5'
DATE 11/29/04
DWG: DP07
SHEET OF

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NORTHWEST UTILITIES NOTIFICATION CENTER

EXPIRES: JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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CLARK COUNTY
WASHINGTON

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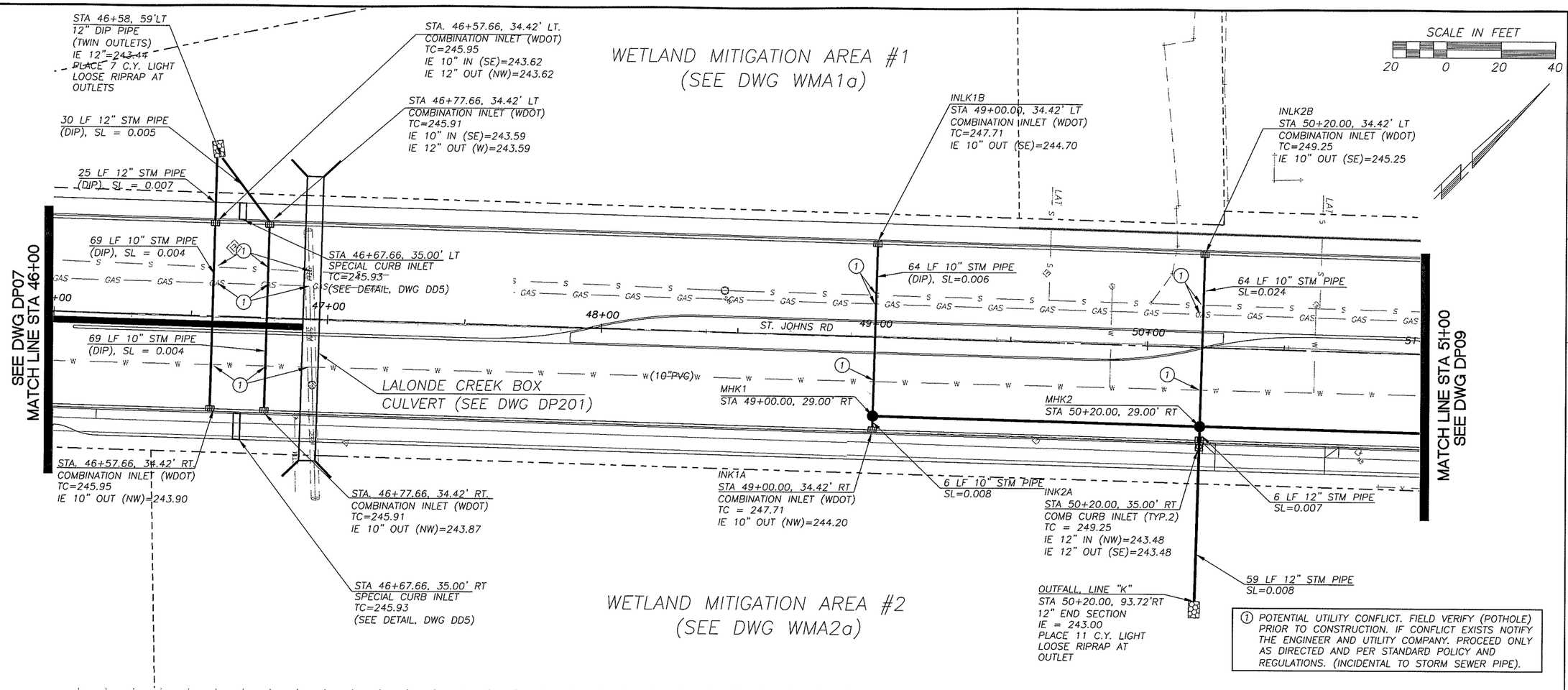

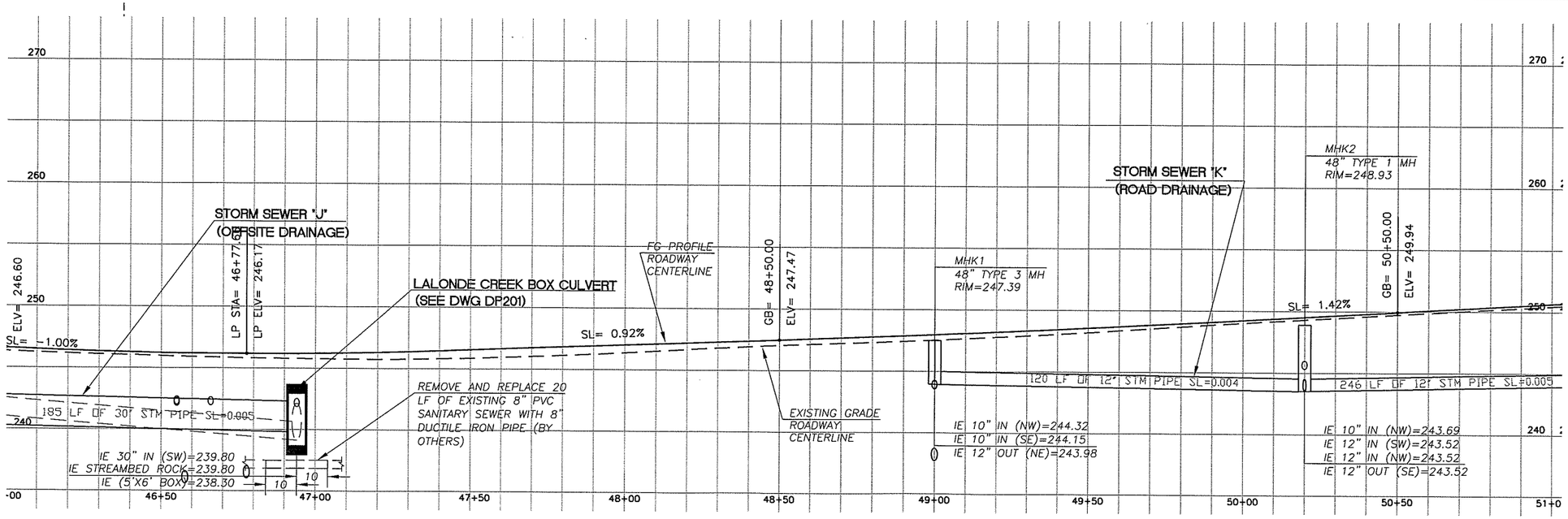

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP08
SHEET	OF

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STATE OF WASHINGTON MILLIE MARIE GOETZE REGISTERED PROFESSIONAL ENGINEER 21848 EXPIRES JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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CLARK COUNTY WASHINGTON

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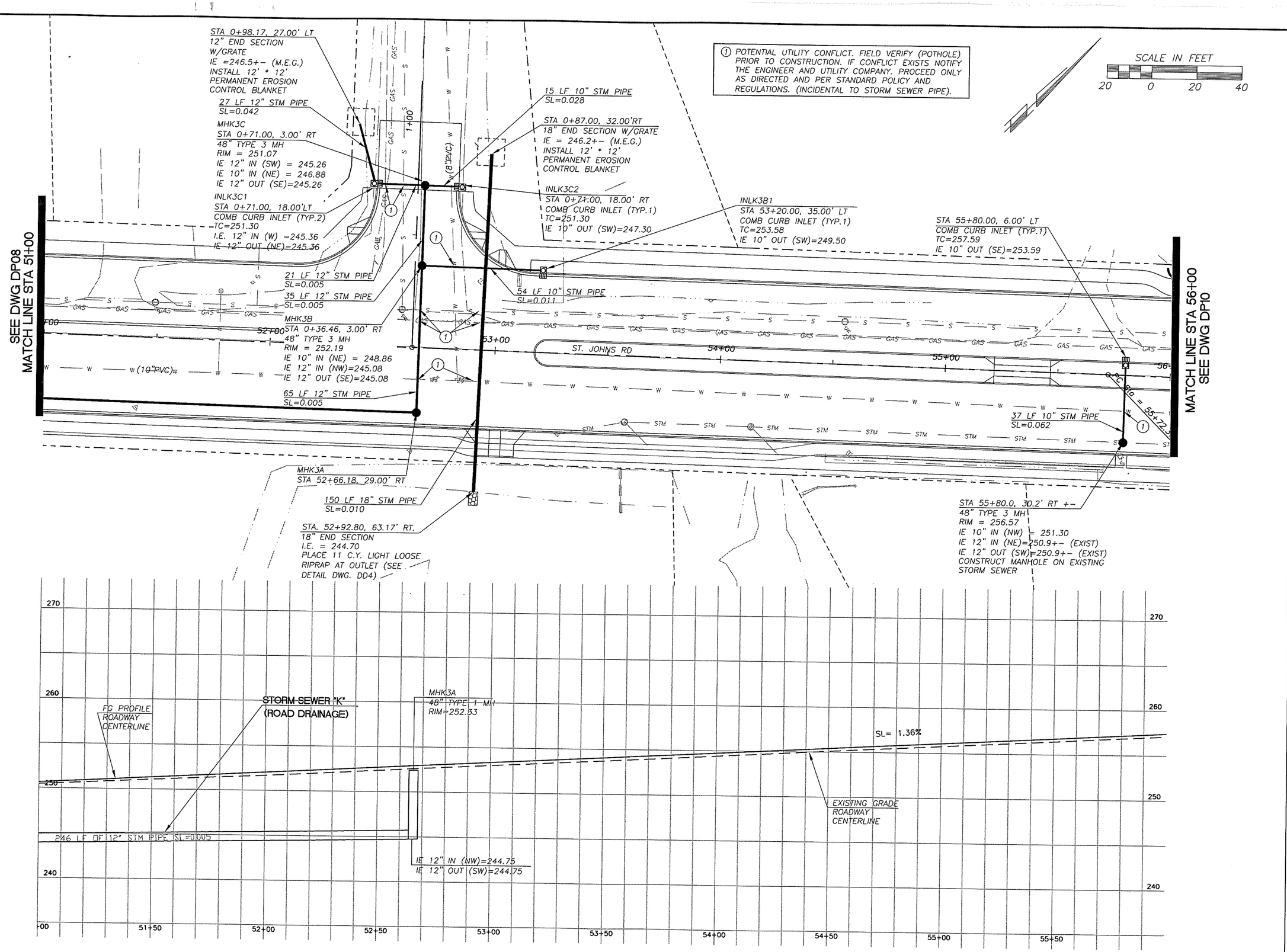

DESIGNED MME/JM
DRAWN BAK
CRP 301422
HOR. 1"=20'
VERT. 1"=5'
DATE 11/29/04
DWG: DP09
SHEET OF

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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MILLINE
PROFESSIONAL ENGINEER
EXPIRES JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE PLAN (STA 51+00 TO 56+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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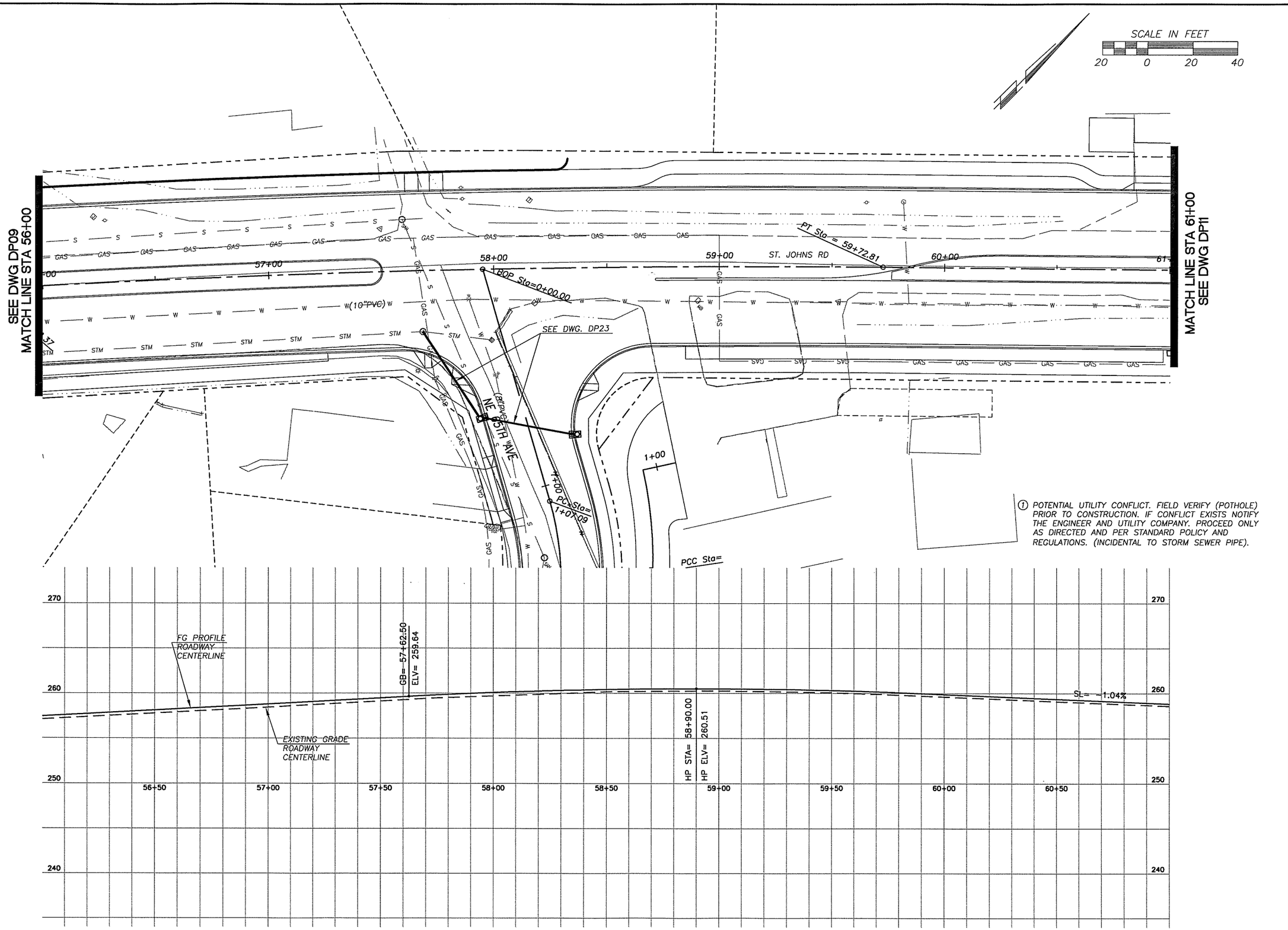

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/31/04
DWG:	DP10
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MICHAEL W. WILLIE
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE PLAN (STA 56+00 TO 61+00)

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CLARK COUNTY
WASHINGTON

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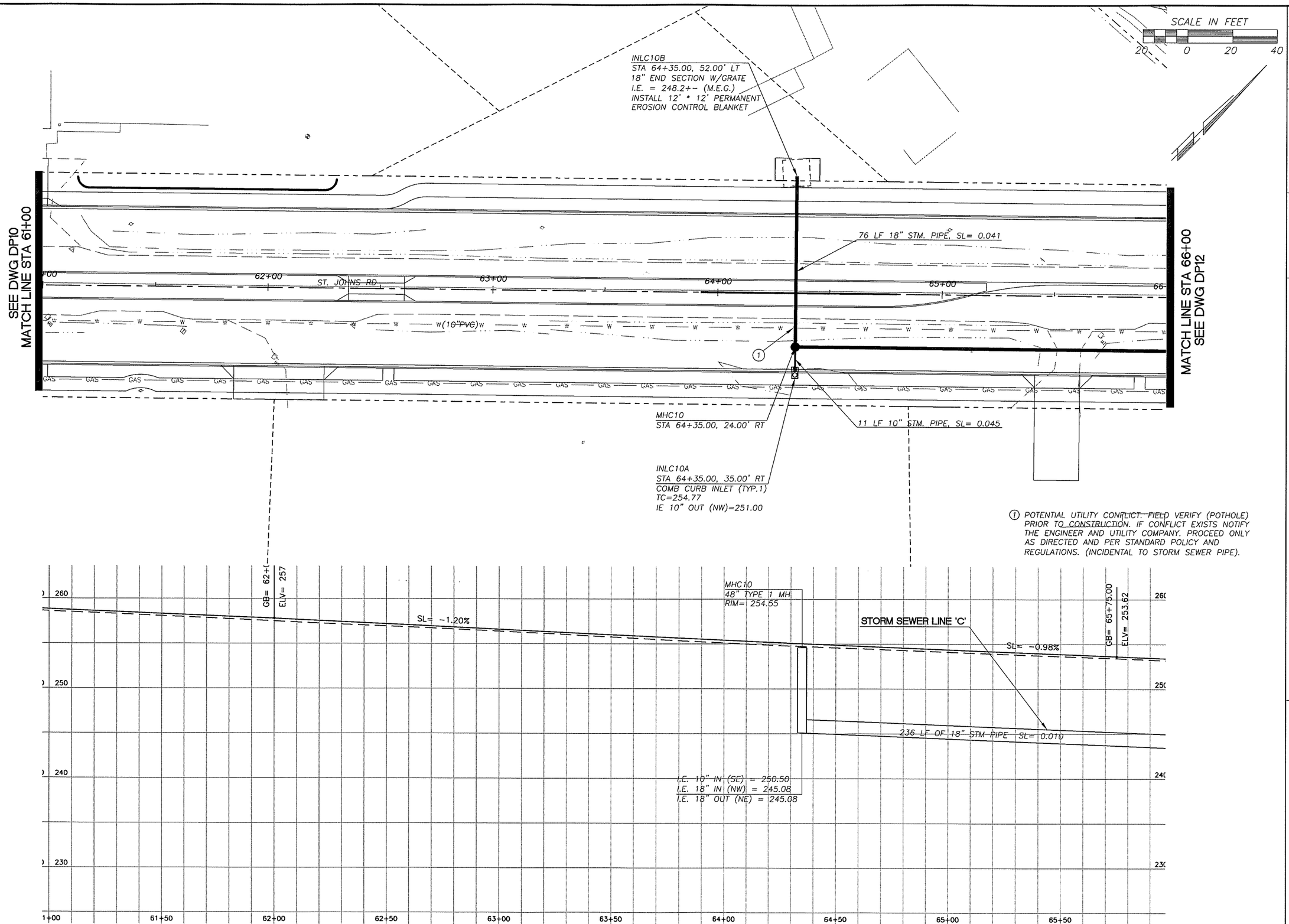

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP11
SHEET	OF

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NORTHWEST UTILITIES NOTIFICATION CENTER

STEVEN D. WASHBURN
MAINE
No. 21148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE PLAN (STA 61+00 TO 66+00)

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CLARK COUNTY
WASHINGTON

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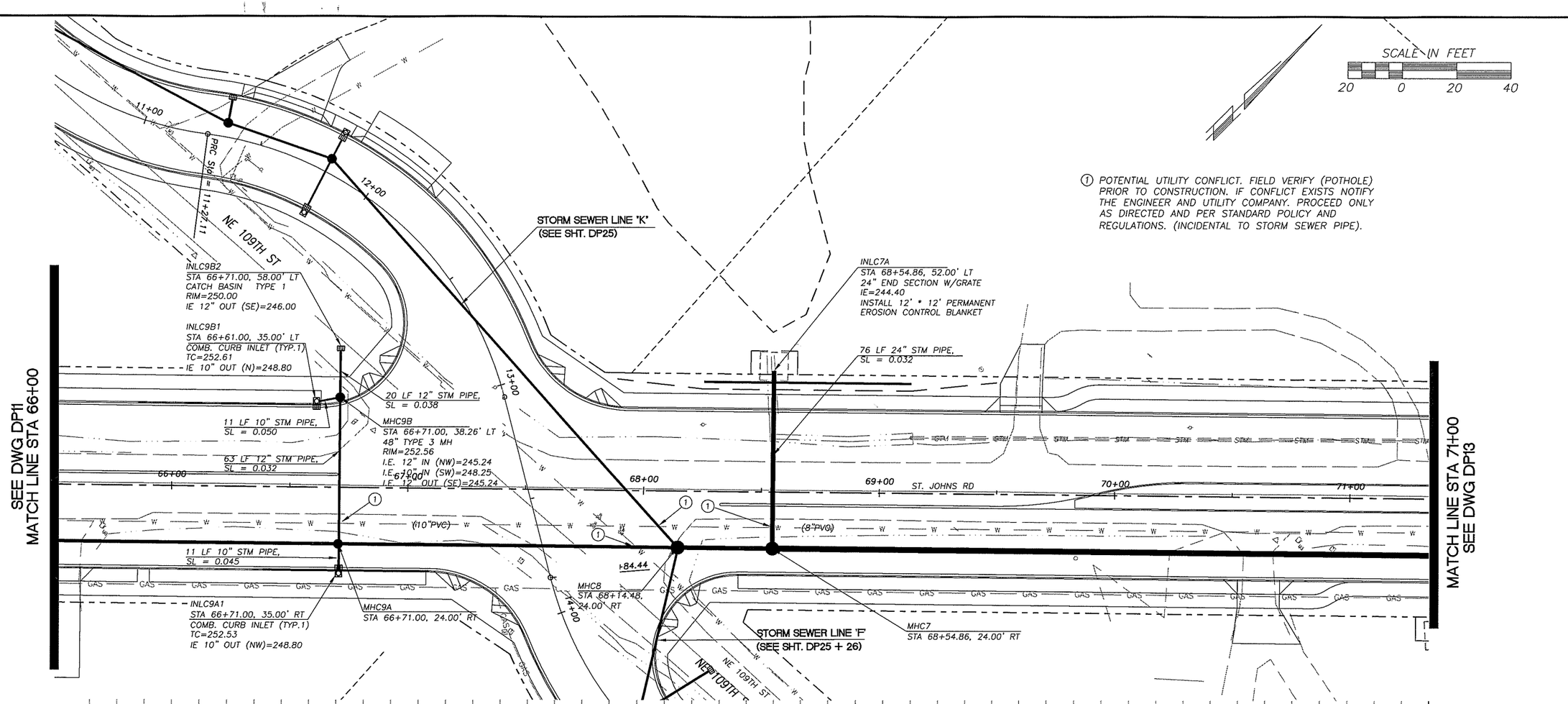

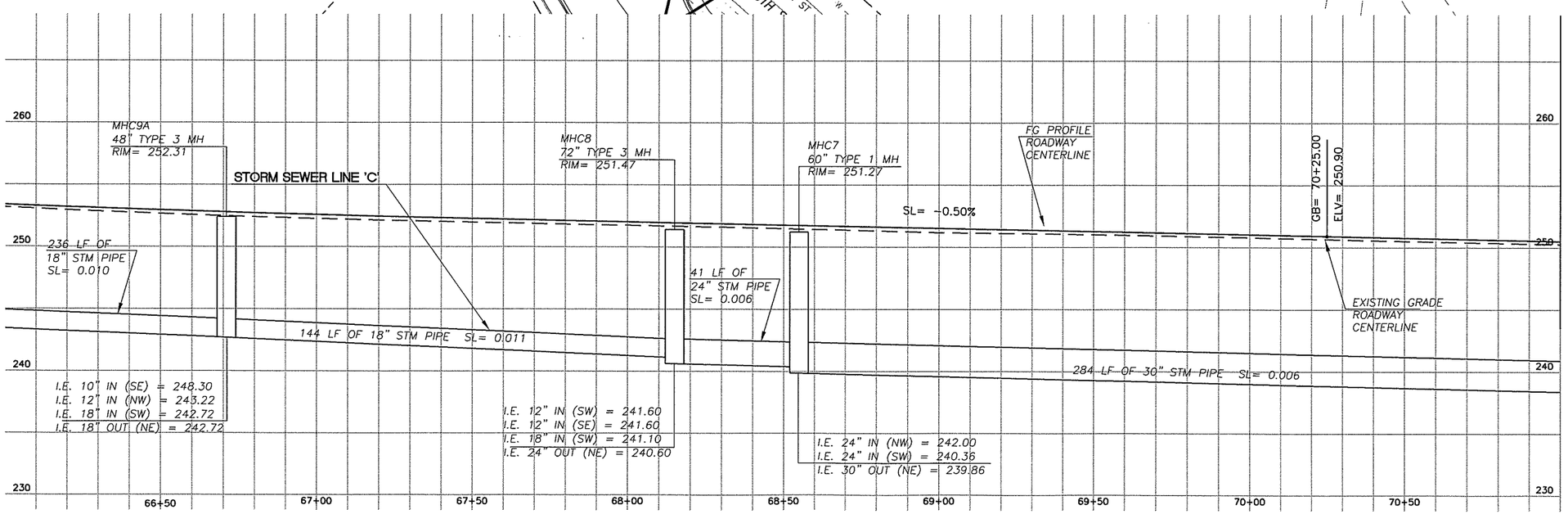

DESIGNED MME/JM
DRAWN JM
CRP 301422
HOR. 1"=20'
VERT. 1"=5'
DATE 11/29/04
DWG: DP12
SHEET OF

CALL 48 HOURS BEFORE YOU DIG
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"It's the Law"
NORTHWEST UTILITIES NOTIFICATION CENTER

JOHN MILLER
STATE OF WASHINGTON
SEAL
PROFESSIONAL ENGINEER
EXPIRES: JULY 2, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE PLAN (STA 66+00 TO 71+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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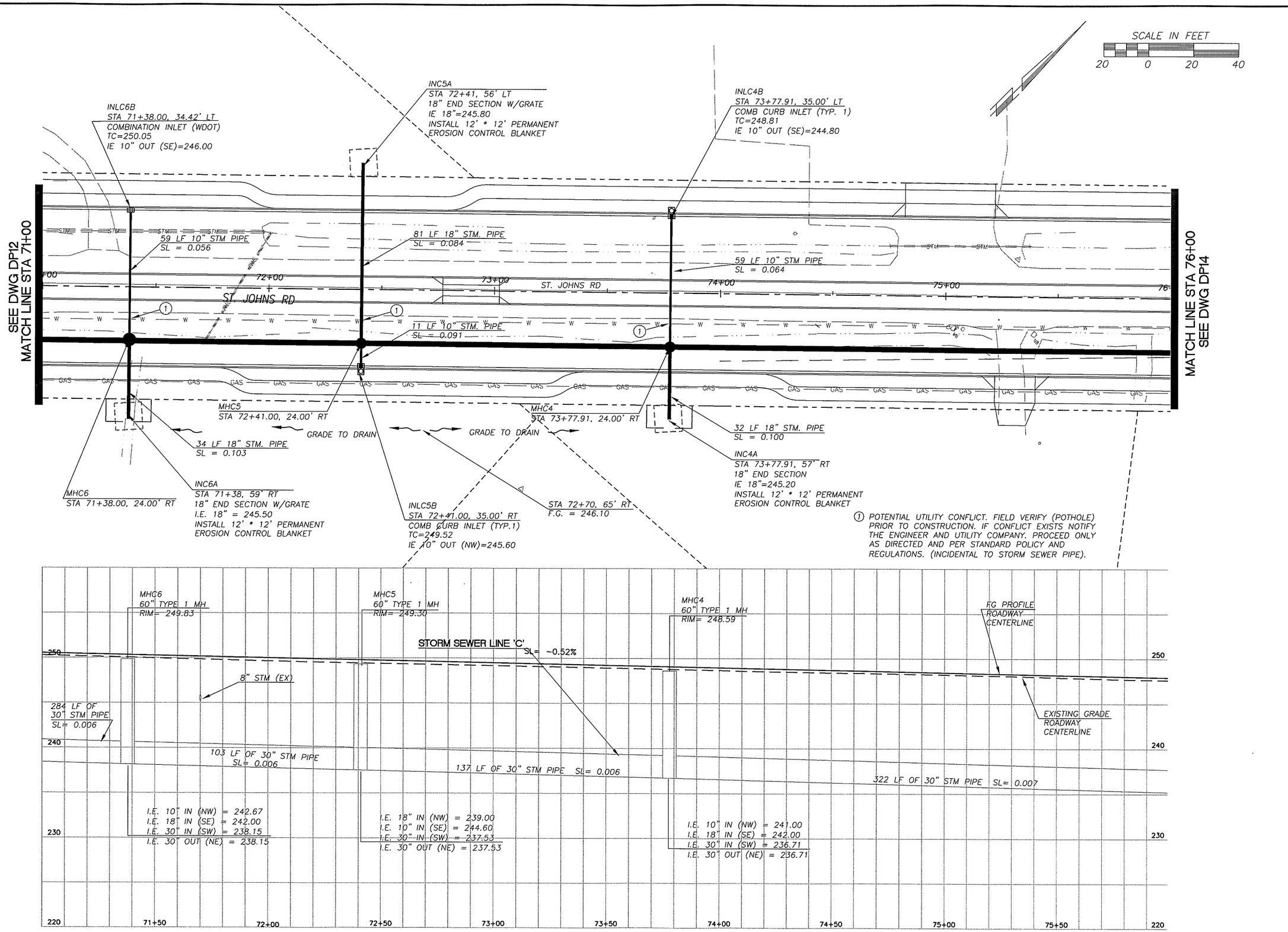

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP13
SHEET	OF

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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MILAE BENJAMIN
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

proud past, promising future
CLARK COUNTY
WASHINGTON

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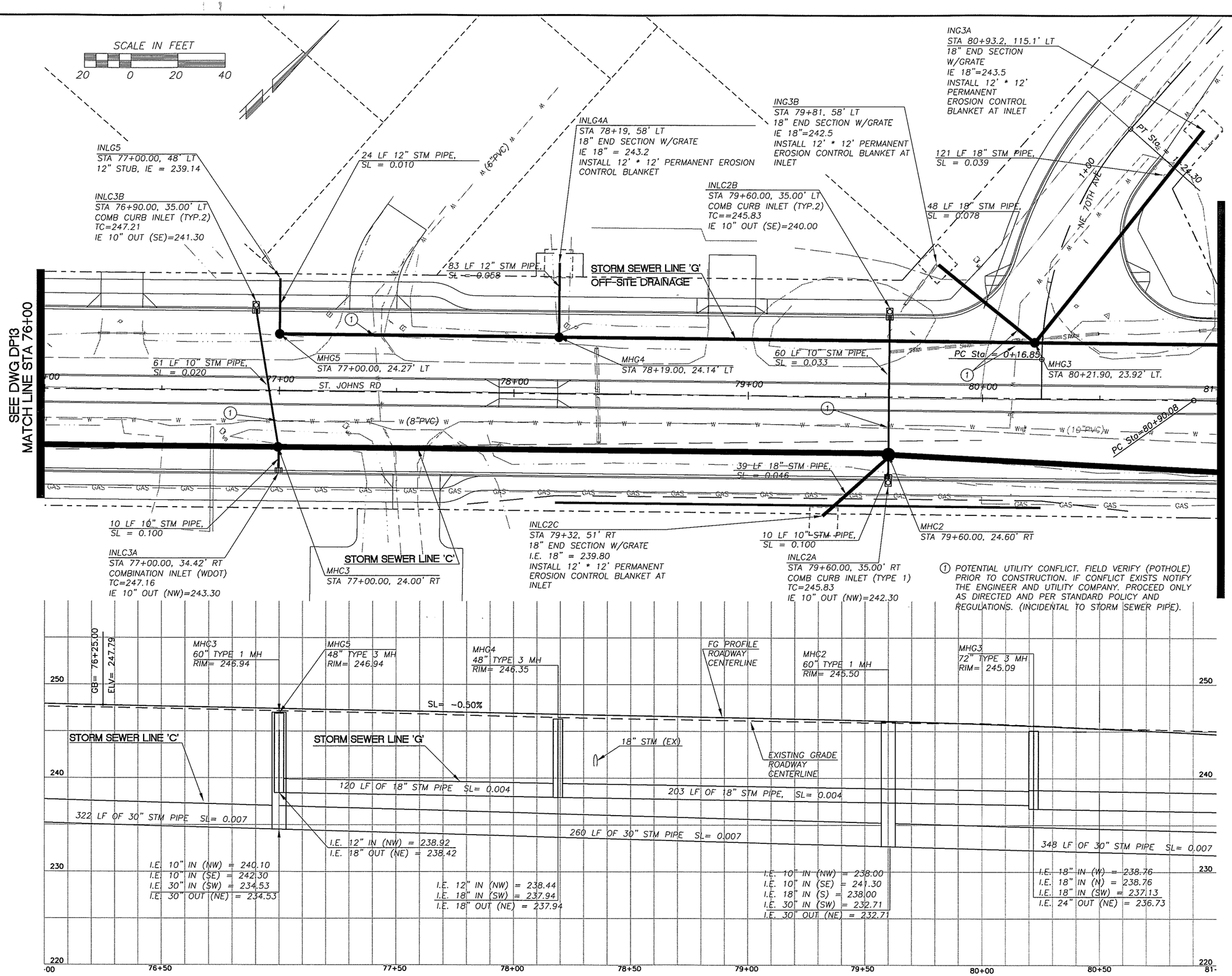

DESIGNED MME/JM
DRAWN BAK
CRP 301422
HOR. 1"=20'
VERT. 1"=5'
DATE 11/29/04
DWG: DP14
SHEET OF

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MILLER
STEVEN J.
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

proud past, promising future
CLARK COUNTY
WASHINGTON

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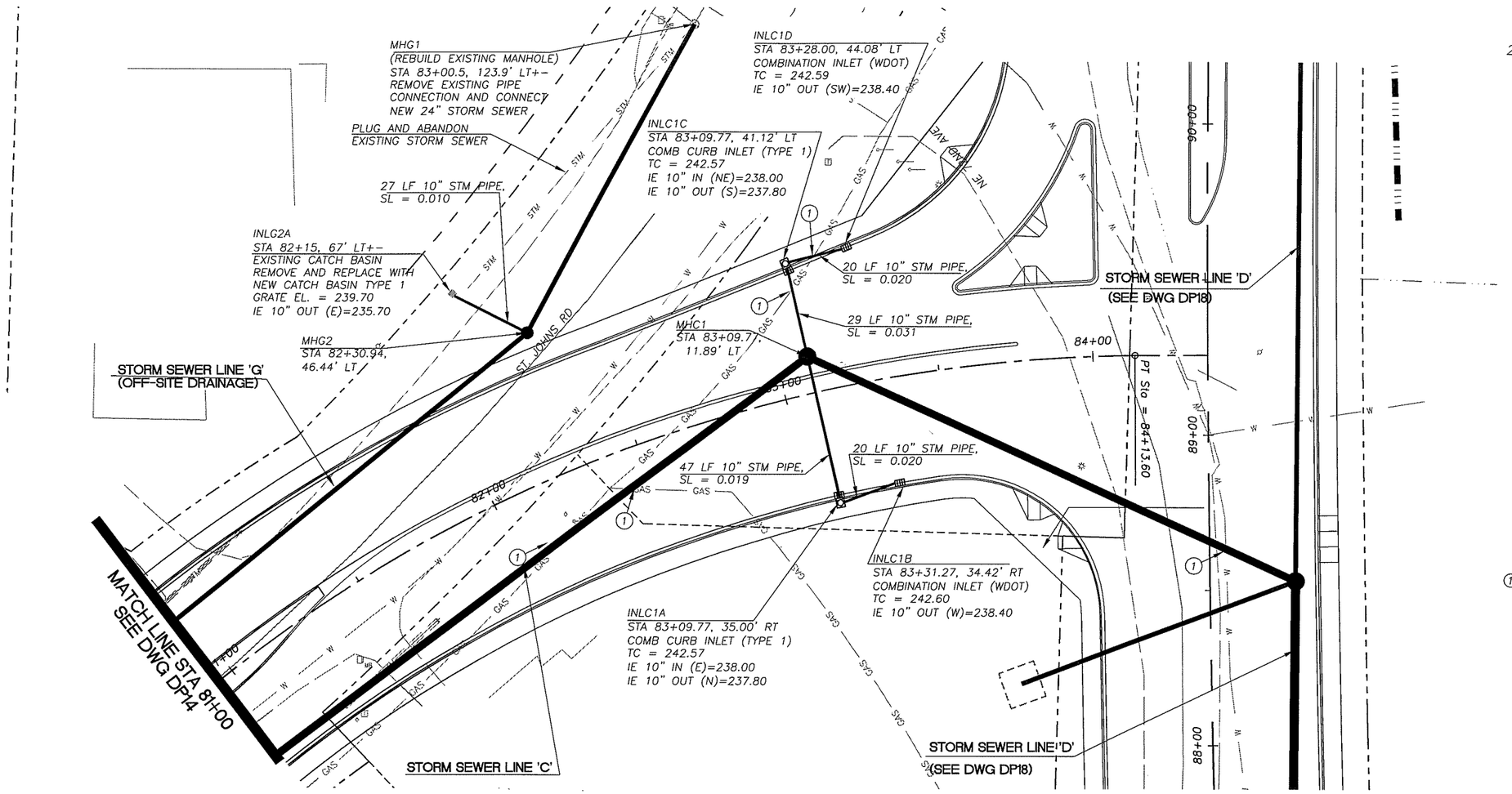
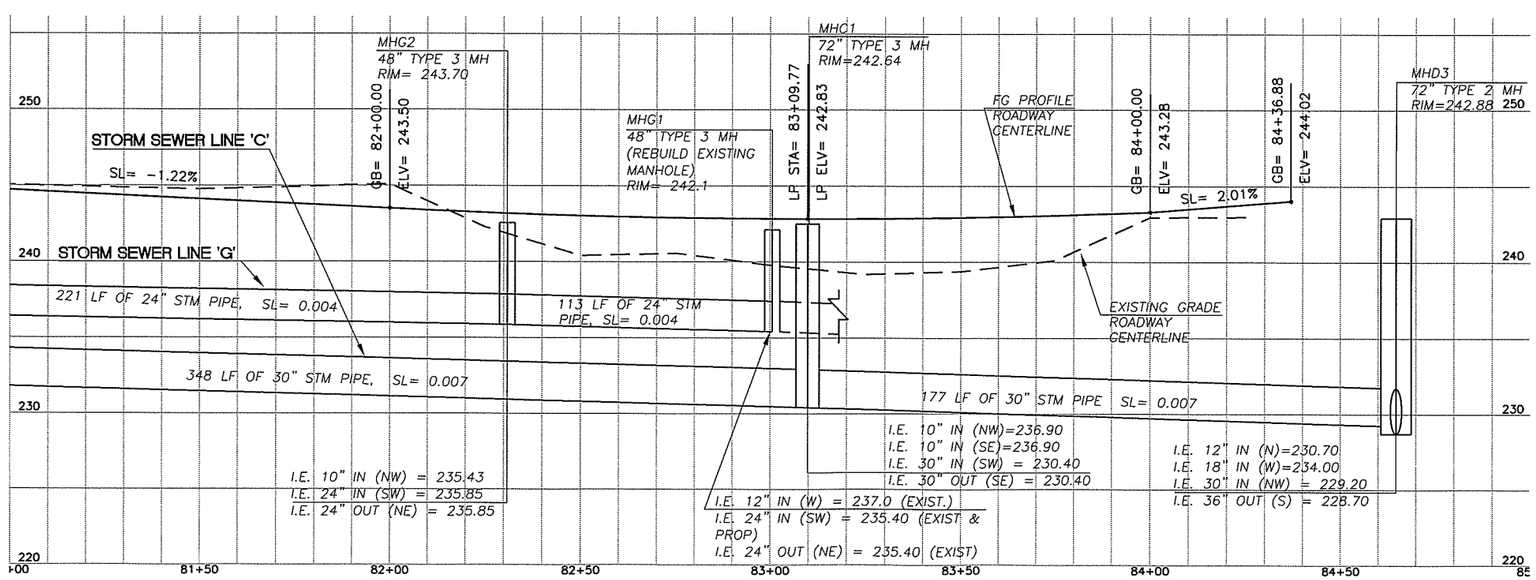


(1) POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).



DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG.	DP15
SHEET	OF

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STATE OF WASHINGTON MILNE 37148 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE PLAN (STA 81+00 TO STA. 84+36.82)

proud past, promising future

CLARK COUNTY WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\dp15.dwg, 11/22/2004 11:34:07 AM, kerlinr

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

20 0 20 40

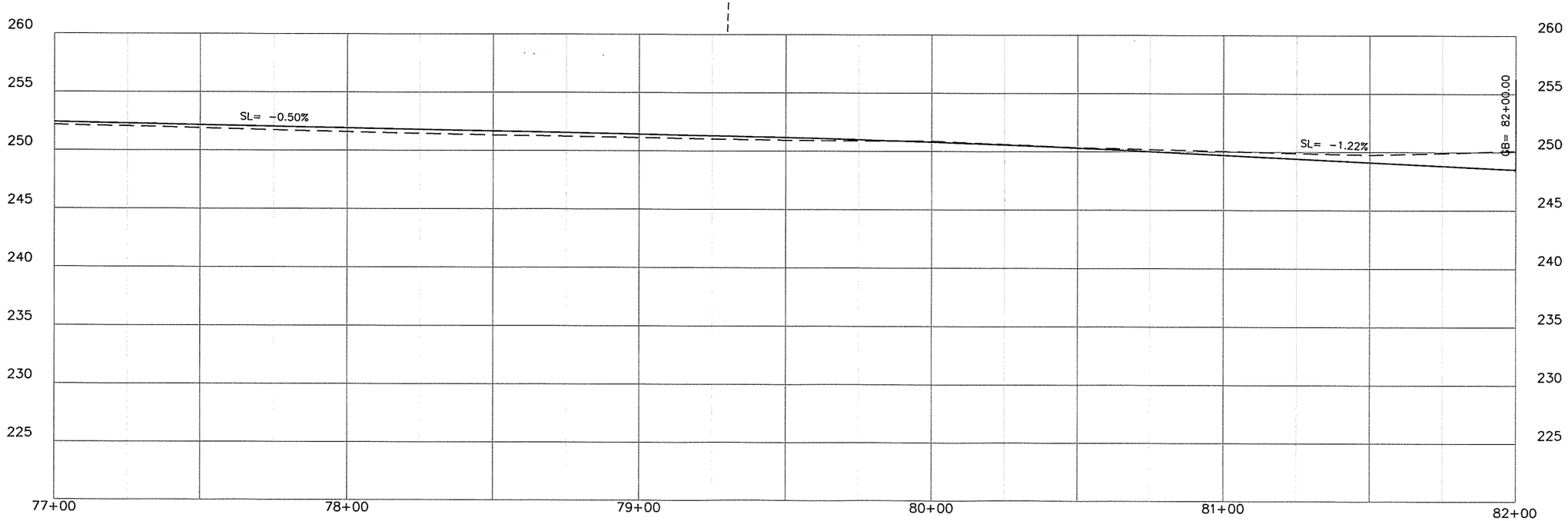
26+00

26+92

EOP Sta = 26+89.77 EOP Sta = 26+46.8179

78+00 79+00 80+00 81+00 82+

MATCH LINE STA 82+00
SEE DWG DP17



DESIGNED MME/JM
DRAWN BAK
CRP 301422
HOR. 1"=20'
VERT. 1"=5'
DATE 11/29/04
DWG: DP16
SHEET OF

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EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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CLARK COUNTY
WASHINGTON

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SCALE IN FEET
20 0 20 40

SEE DWG DP16
MATCH LINE STA 82+00

MATCH LINE STA 87+00
SEE DWG DP18

INLE12B
STA 82+23.58, 47.50' LT
DITCH INLET
GRATE EL.= 241.40
IE 12" OUT (E)=237.90

39 LF 12" STM PIPE
SL = 0.015

28 LF 12" STM
PIPE, SL = 0.013

MHE12
STA 82+48.60,
3.00' RT

INLE12A
STA 82+23.58, 8.50' RT
DITCH INLET
GRATE EL.=241.60
IE 12" IN (W)=237.30
IE 12" OUT (N)=237.30

STORM SEWER LINE 'E'
(SEE DWG DP101)

MHE11
STA 82+94.45,
55.03' RT

MHD1
STA 83+34.82,
13.03' RT

PC Sta = 83+73

STORM SEWER LINE 'D'

83+00 84+00 85+00 86+00 87+

INLD2B
STA 86+49.83, 35.00' LT
COMB. CURB INLET (TYPE 1)
TC=242.01
IE 10" IN (S)=237.50
IE 10" IN (N)=237.50
IE 10" OUT (E)=237.50

INLD2B2
STA 86+70.39, 34.42' LT
COMBINATION INLET (WDOT)
TC=242.03
IE 10" OUT (S)=238.10

INLD2B1
STA 86+30.22, 34.42' LT
COMBINATION INLET (WDOT).
TC=242.03
IE 10" OUT (E)=238.10

20 LF 10" STM PIPE,
SL = 0.030

20 LF 10" STM PIPE,
SL = 0.030

54 LF 10" STM PIPE,
SL = 0.046

NE 72ND AV

MHD2
STA 86+49.83,
18.32' RT.

20 LF 10" STM PIPE,
SL = 0.030

17 LF 10" STM PIPE,
SL = 0.029

20 LF 10" STM PIPE,
SL = 0.030

INLD2A1
STA 86+30.22, 34.42' RT
COMBINATION INLET (WDOT)
TC=242.03
IE 10" OUT (N)=238.10

INLD2A
STA 86+49.83, 35.00' RT
COMB. CURB INLET (TYPE 2)
TC=242.01
IE 10" IN (S)=237.50
IE 10" IN (N)=237.50
IE 10" OUT (W)=235.50

INLD2A2
STA 86+70.39, 34.42' RT
COMBINATION INLET (WDOT)
TC=242.03
IE 10" OUT (S)=238.10

260 255 250 245 240 235 230 225

MHE12
72" TYPE 2 MH
RIM= 244.84

ELV= 244.60

SL= 0.50%

MHE11
96" TYPE 2 MH
RIM= 243.5

HP STA= 82+99.02
HP ELV= 244.97

MHD1
72" TYPE 2 MH
RIM= 244.65

FG PROFILE
ROADWAY
CENTERLINE

GB= 84+50.00
ELV= 243.81

STORM SEWER LINE 'D'

LP STA= 86+49.83
LP ELV= 242.27

MHD2
72" TYPE 2 MH
RIM= 241.88

EXISTING GRADE
ROADWAY
CENTERLINE

59 LF OF 36" STM
PIPE SL= 0.004

315 LF OF 36" STM PIPE SL= 0.004

12" IN (SW)=236.94
30" IN (STUB,S)=228.37
30" OUT (NE)=228.37

69 LF OF 30" STM
PIPE SL= 0.017

I.E. 30" IN (SW) = 227.18
I.E. 36" IN (NW) = 226.68
I.E. 42" OUT (E) = 226.18

I.E. 36" IN (N) = 226.91
I.E. 36" OUT (SE) = 226.91

I.E. 10" IN (W) = 235.00
I.E. 10" IN (E) = 235.00
I.E. 36" IN (N) = 228.17
I.E. 36" OUT (S) = 228.17

82+00 83+00 84+00 85+00 86+00 87+00

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP17
SHEET	OF

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MILLER
STEVEN R. MILLER
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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DRAINAGE PLAN; NE 72ND AVE (STA 82+00 TO 87+00)

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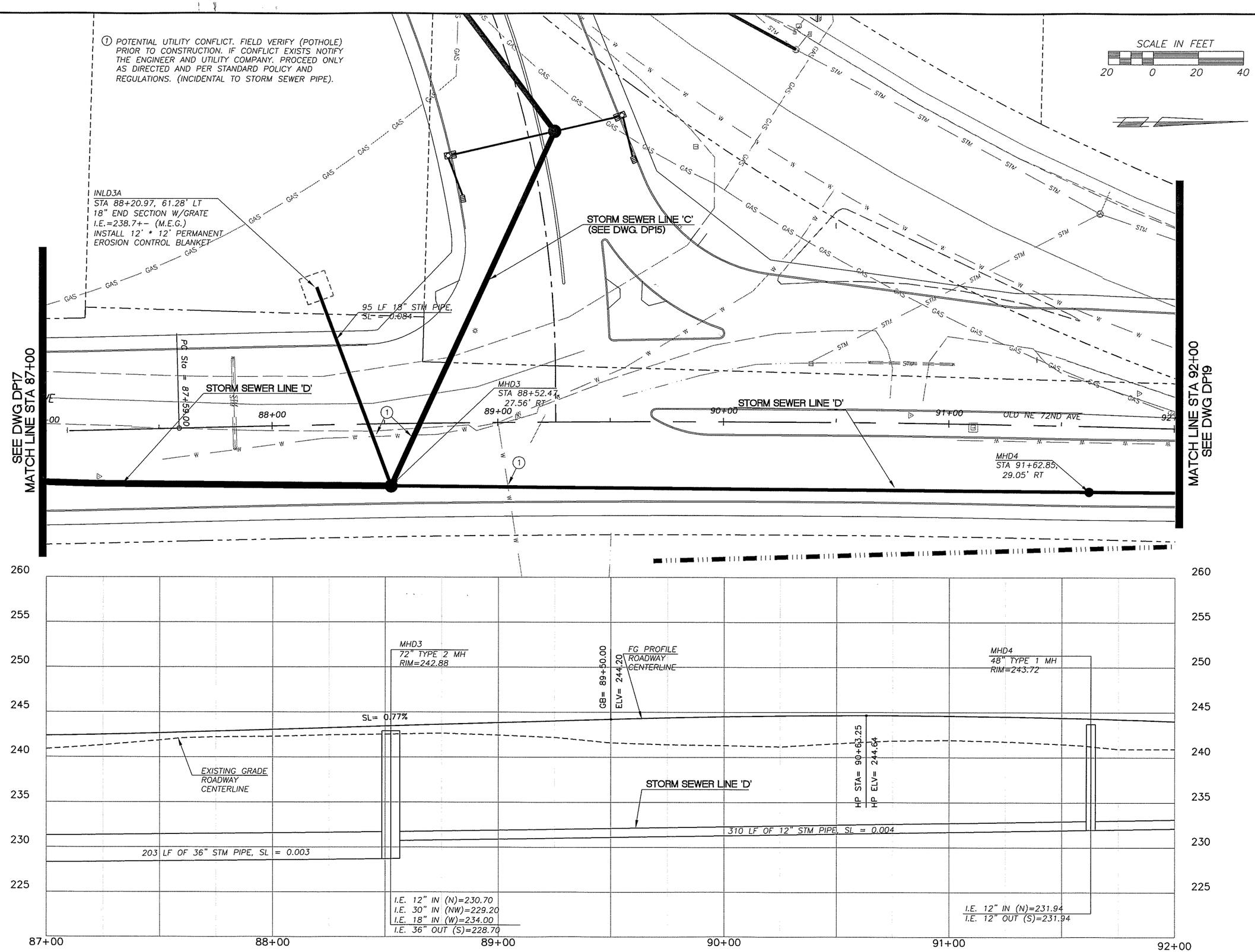

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP18
SHEET	OF

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MILAN R. PEDINCHON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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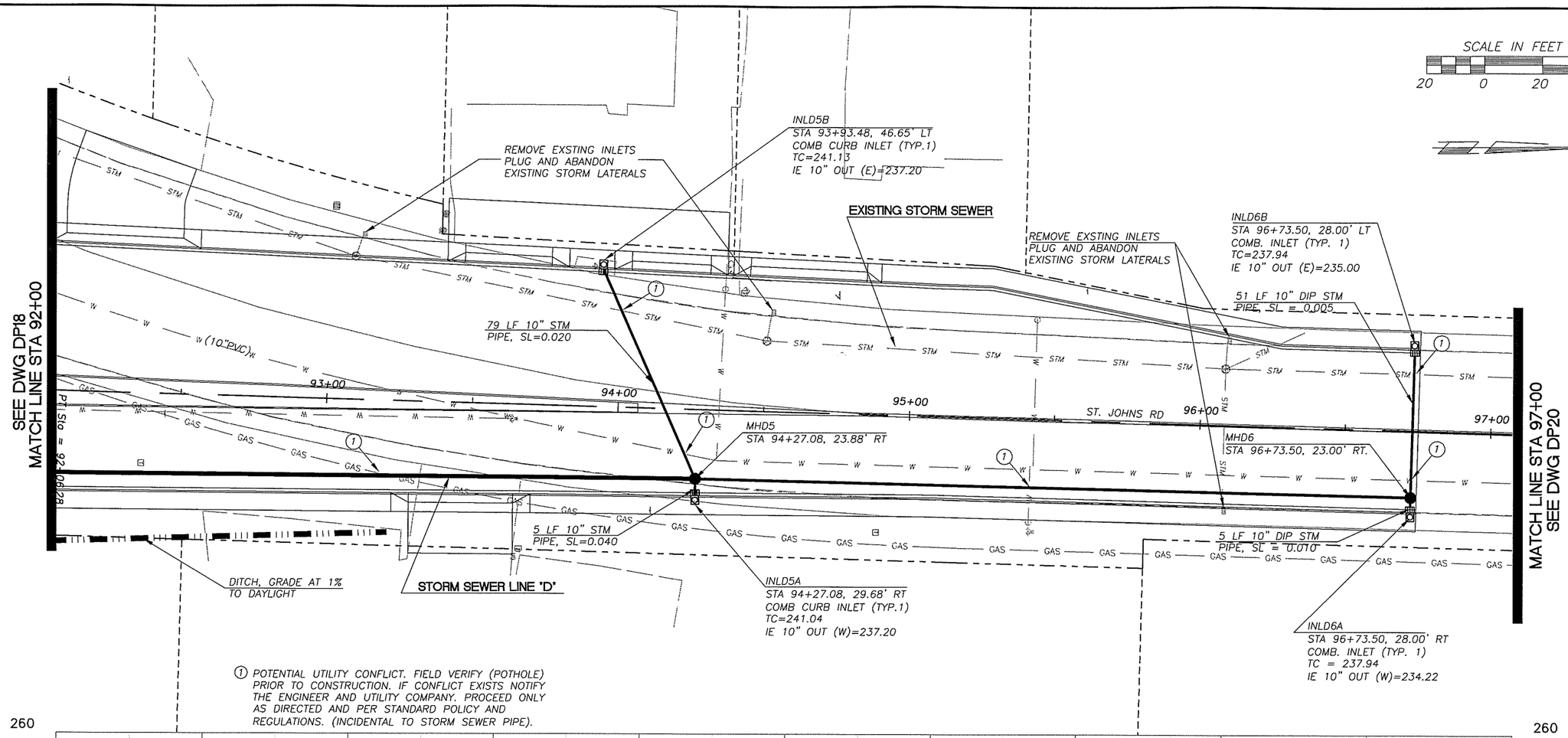

DESIGNED MME/JM
DRAWN BAK
CRP 301422
HOR. 1"=20'
VERT. 1"=5'
DATE 11/29/04
DWG: DP19
SHEET OF

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JOHN M. MAYER
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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NO DRAINAGE IMPROVEMENTS, THIS SHEET

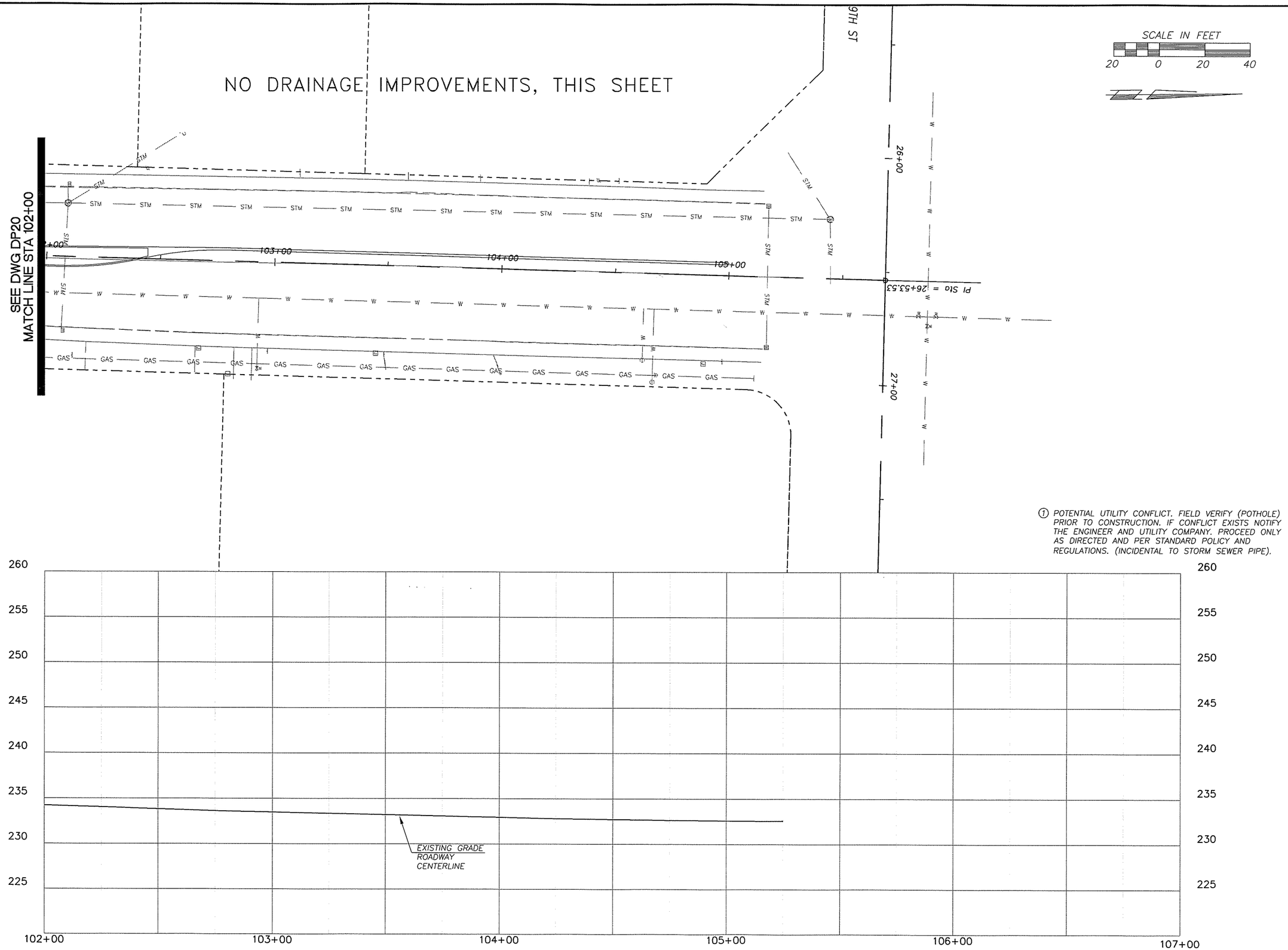
SCALE IN FEET
20 0 20 40

SEE DWG P19
MATCH LINE STA 97+00

MATCH LINE STA 102+00
SEE DWG P21

98+00 99+00 100+00 101+00 102

STM STM STM



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DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP21
SHEET	OF

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STATE OF WASHINGTON
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31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

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

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CLARK COUNTY
WASHINGTON

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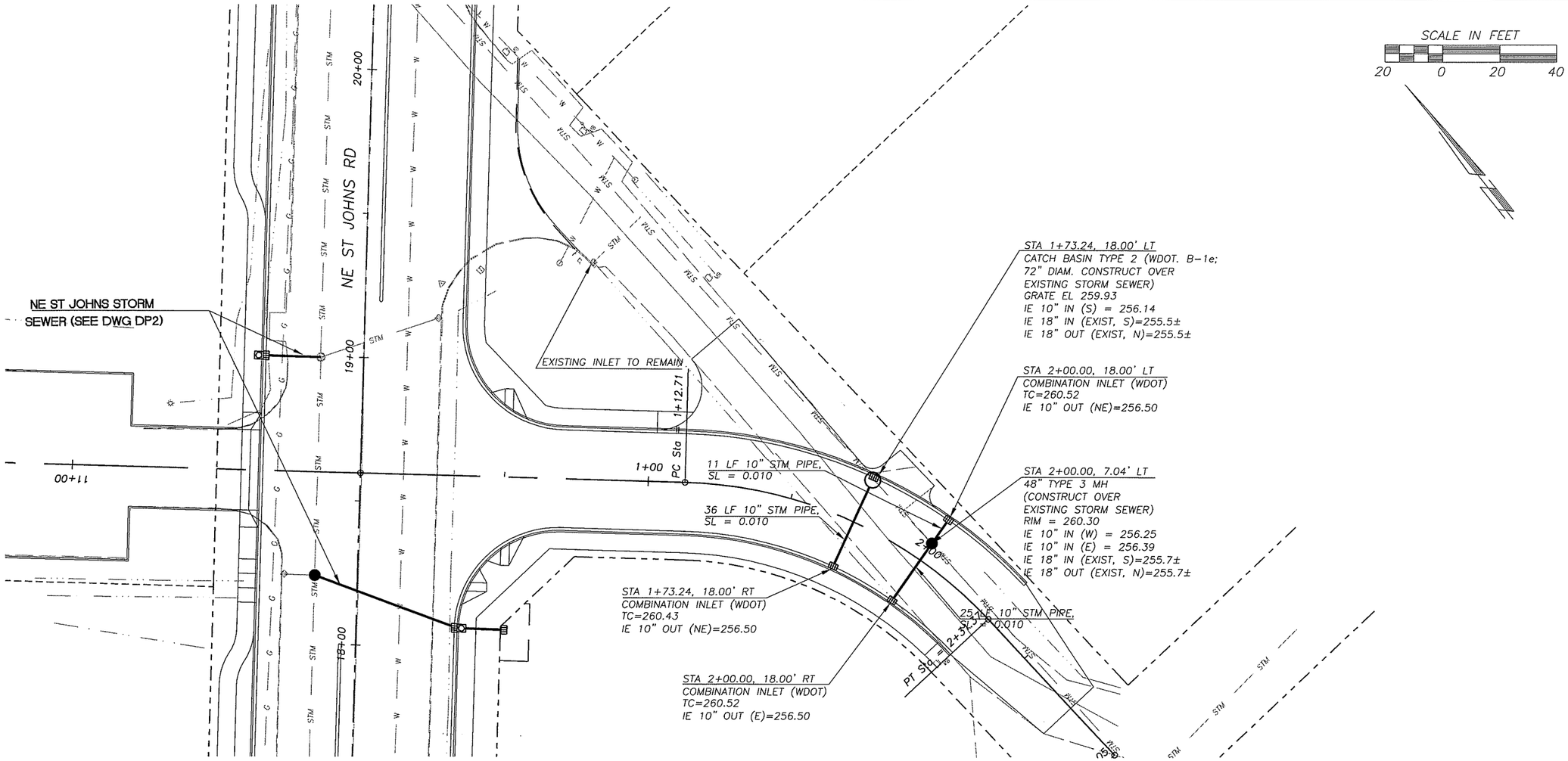

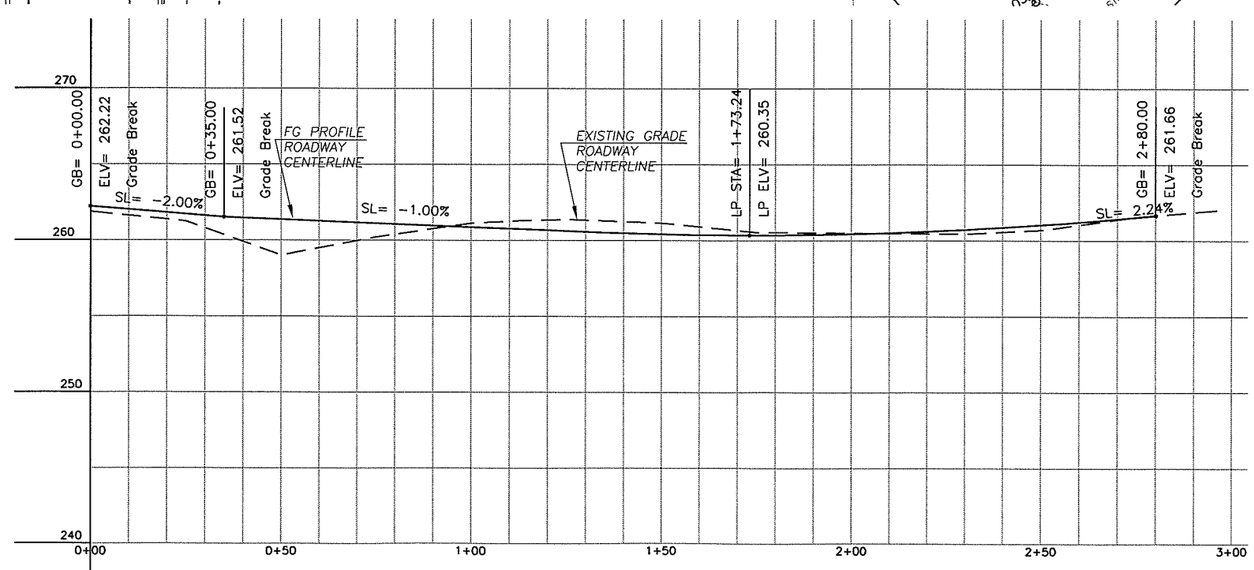

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP22
SHEET	OF

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STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 7, 2005

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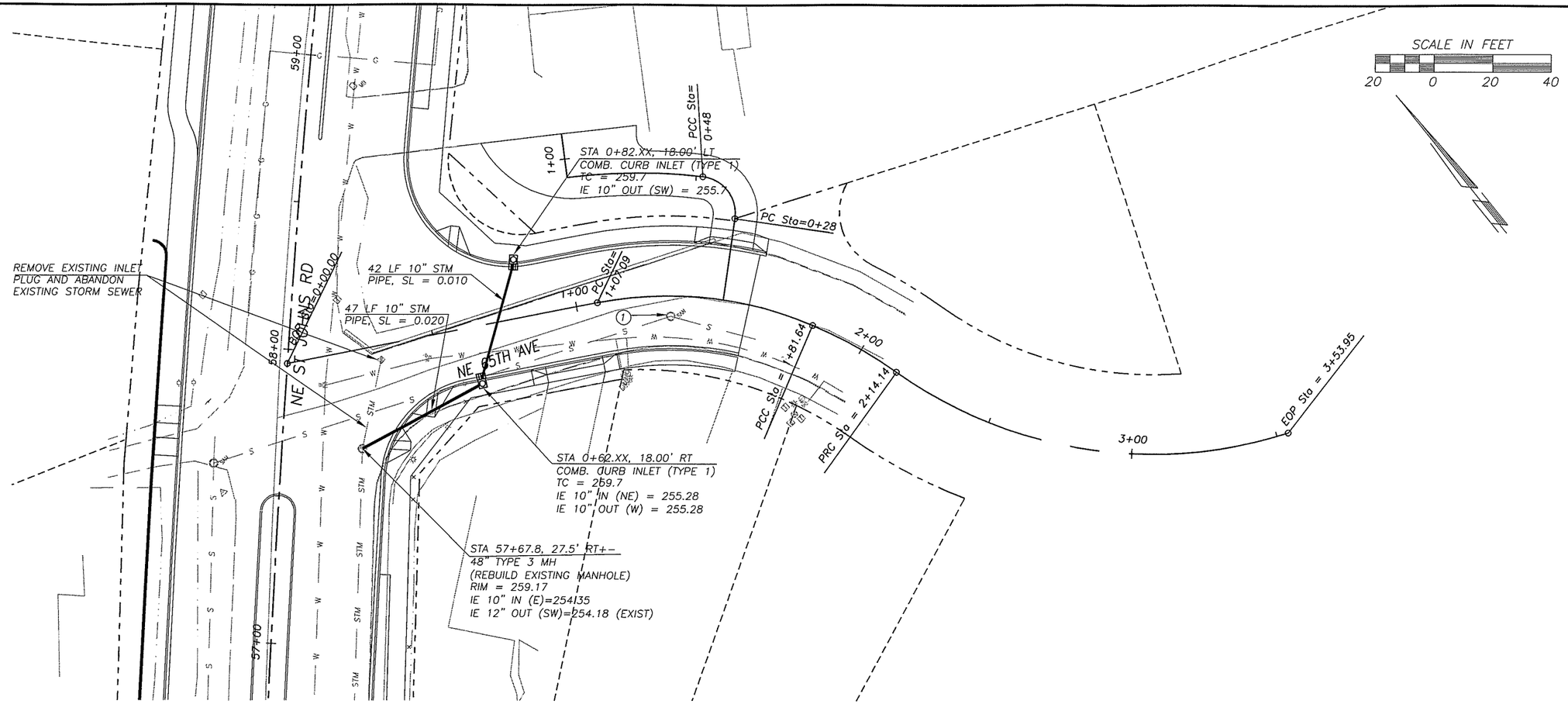

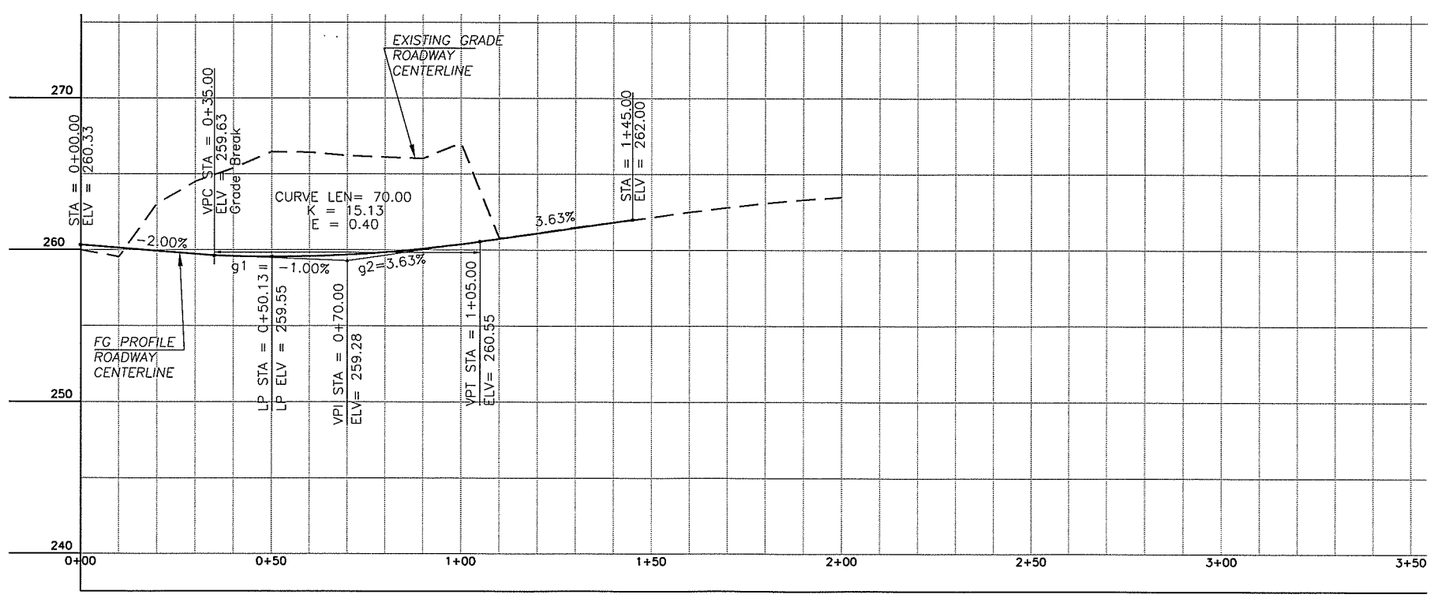

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP23
SHEET	OF

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REGISTERED PROFESSIONAL ENGINEER
EXPIRES: AUG 7, 2005

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DESIGN SECTION

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

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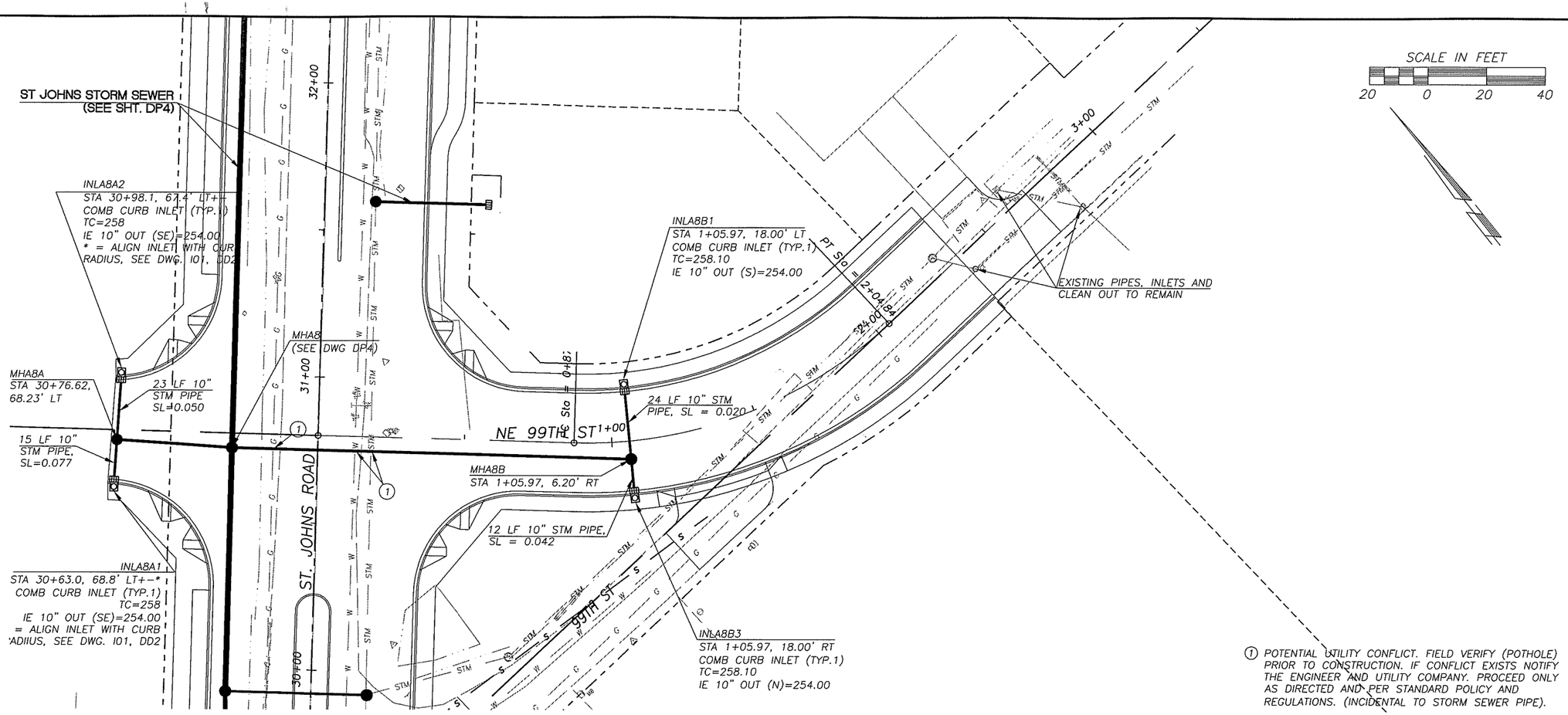

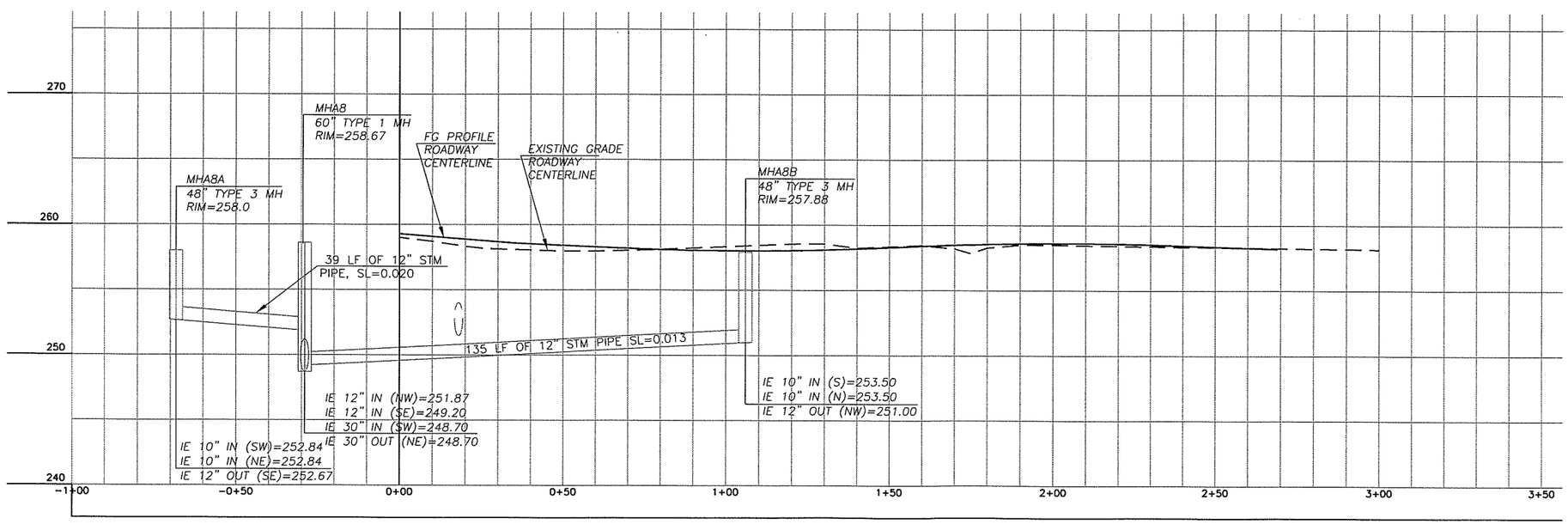

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP24
SHEET	OF

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MILLIE WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 2, 2005

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DRAINAGE PLAN; NE 99TH ST (STA 0+00 TO 3+00)

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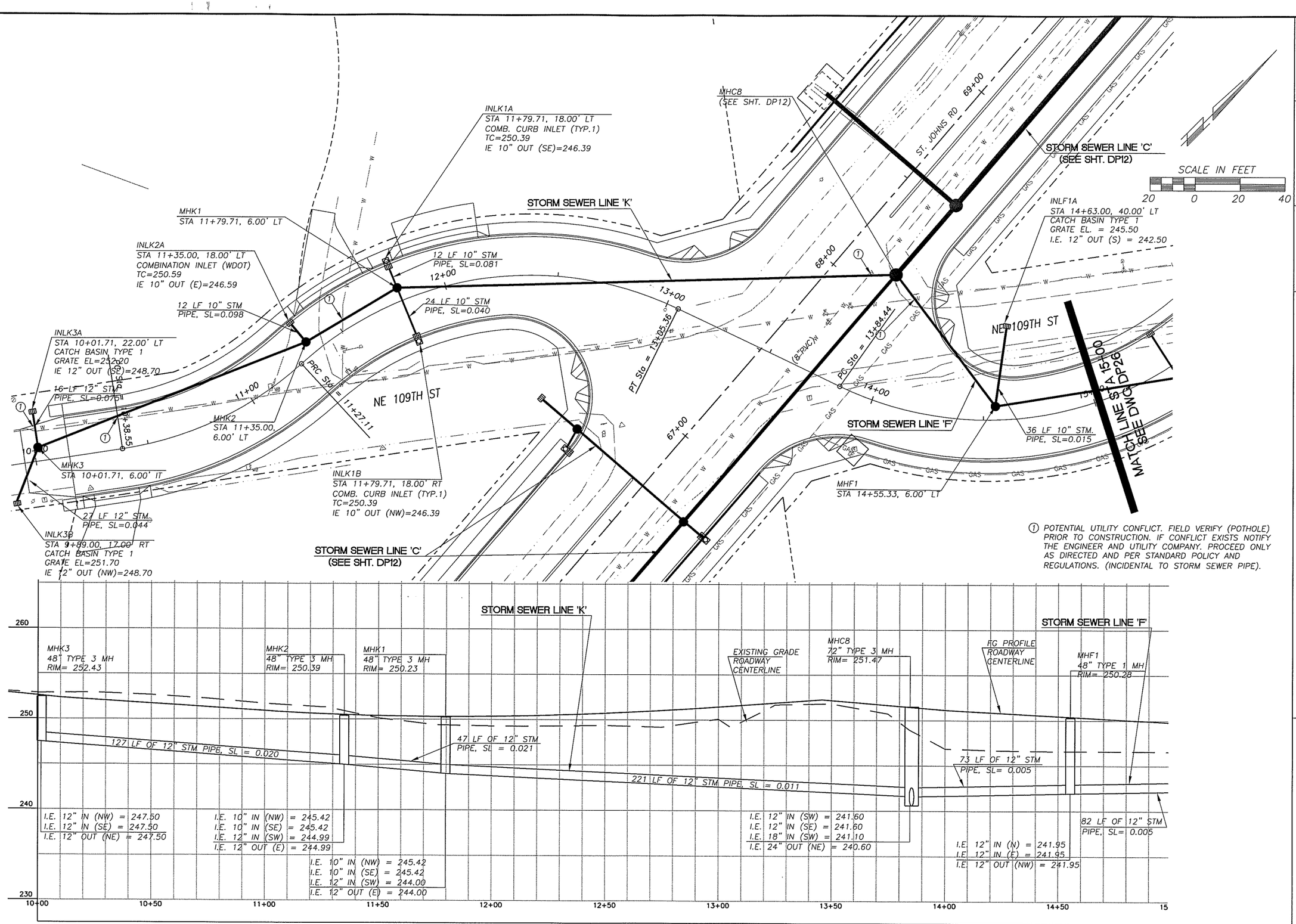

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP25
SHEET	OF

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MILAN E. MIHOVILOVICH
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2003

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ST. JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE PLAN; NE 109TH ST (STA 10+00 TO 15+00)

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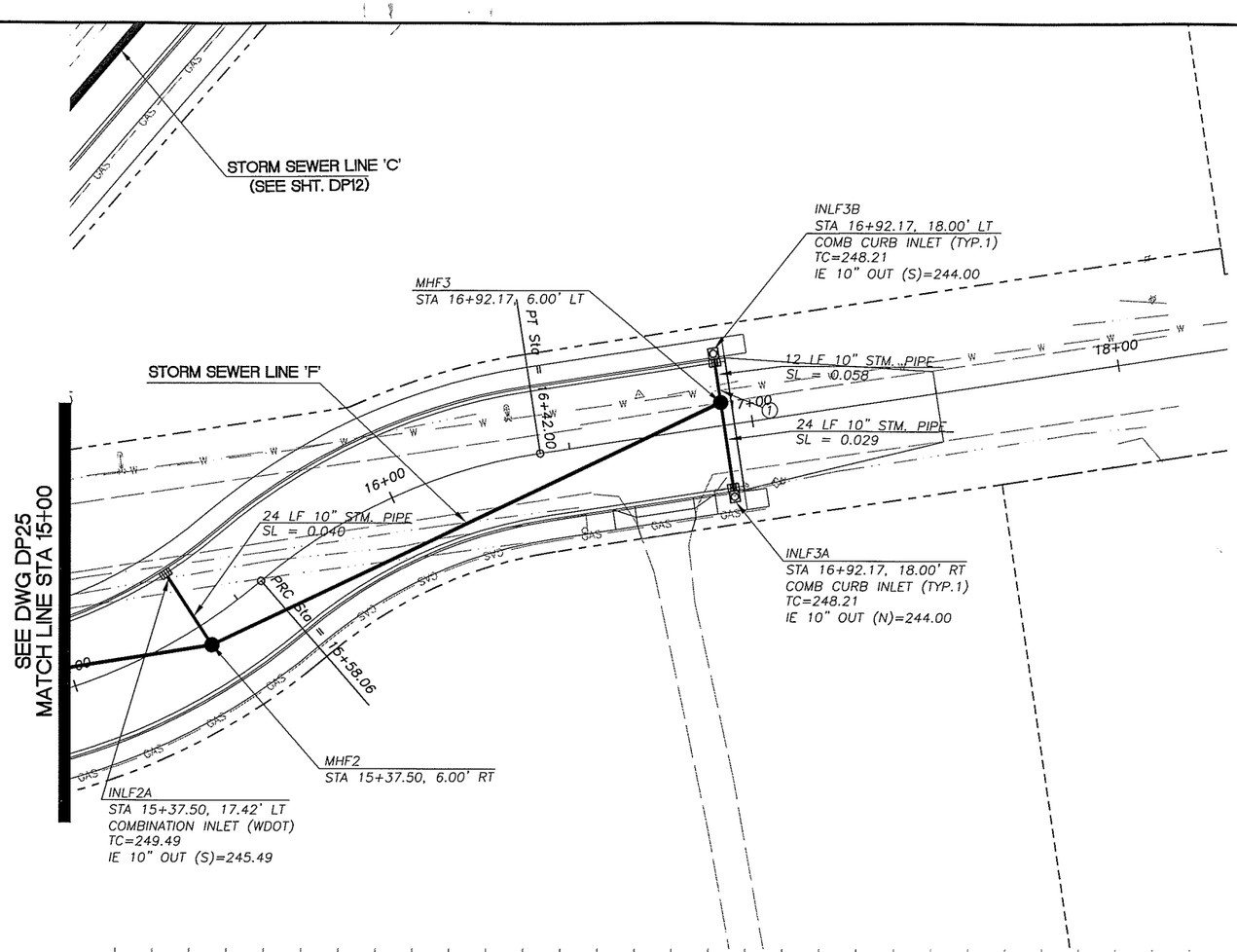

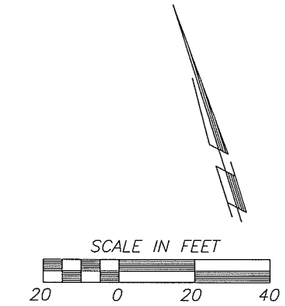

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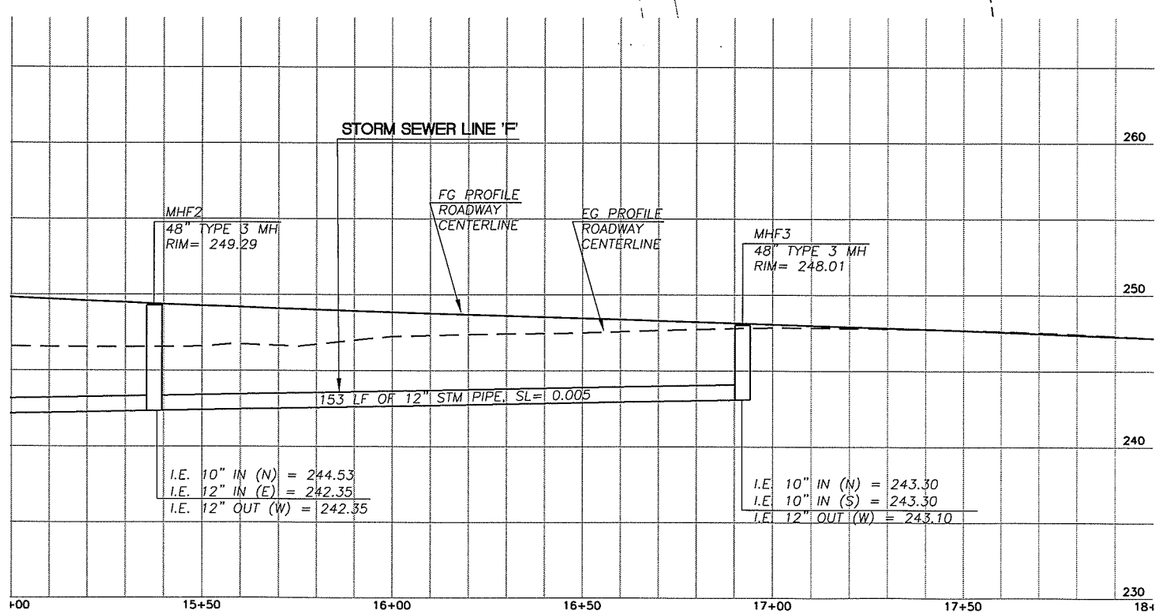

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP26
SHEET	OF

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STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JULY 2, 2005

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ST. JOHNS RD (NE 50TH TO NE 72ND)
DRAINAGE PLAN; NE 109TH ST (STA 15+00 TO 18+00)

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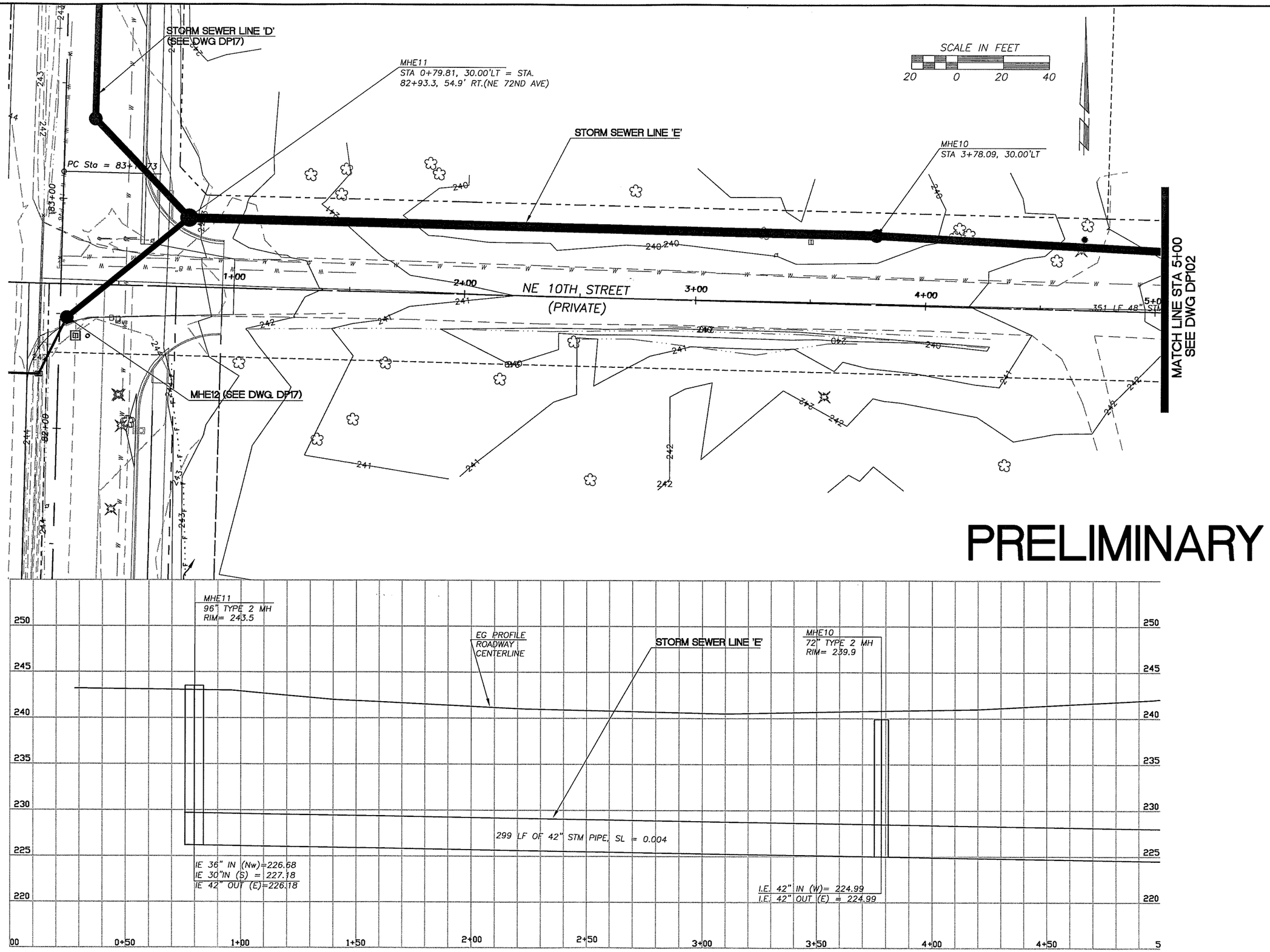

DESIGNED	JM
DRAWN	RK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP101
SHEET	OF

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DESIGN SECTION

ST. JOHNS RD; DRAINAGE PLAN
NE 110TH STREET (STA 0+00 TO STA 5+00)

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CLARK COUNTY
WASHINGTON

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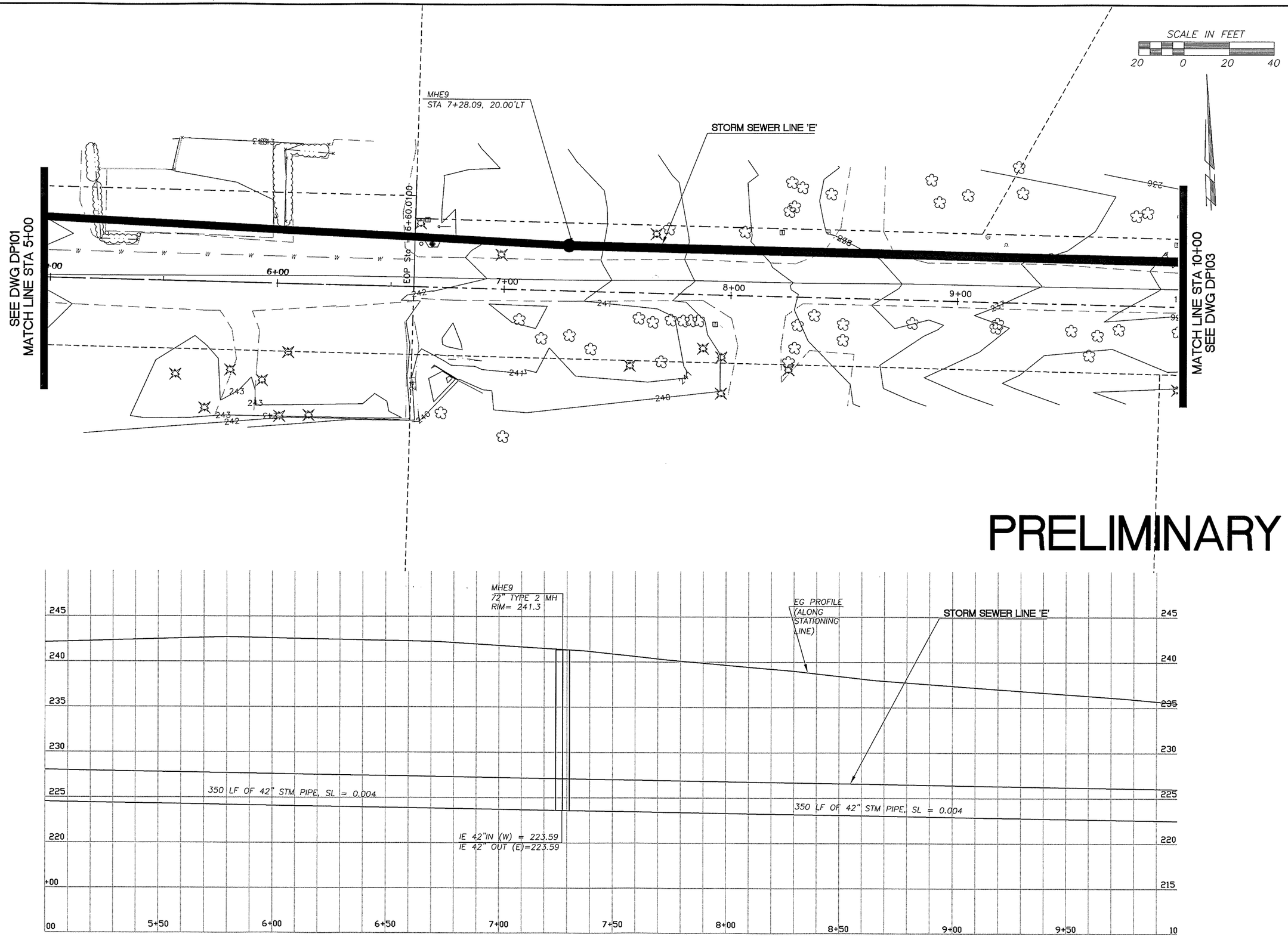

DESIGNED	JM
DRAWN	RK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/31/04
DWG:	DP102
SHEET	OF

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EXPIRES JULY 7, 2003

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NE 110TH STREET (STA 5+00 TO STA 10+00)

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WASHINGTON

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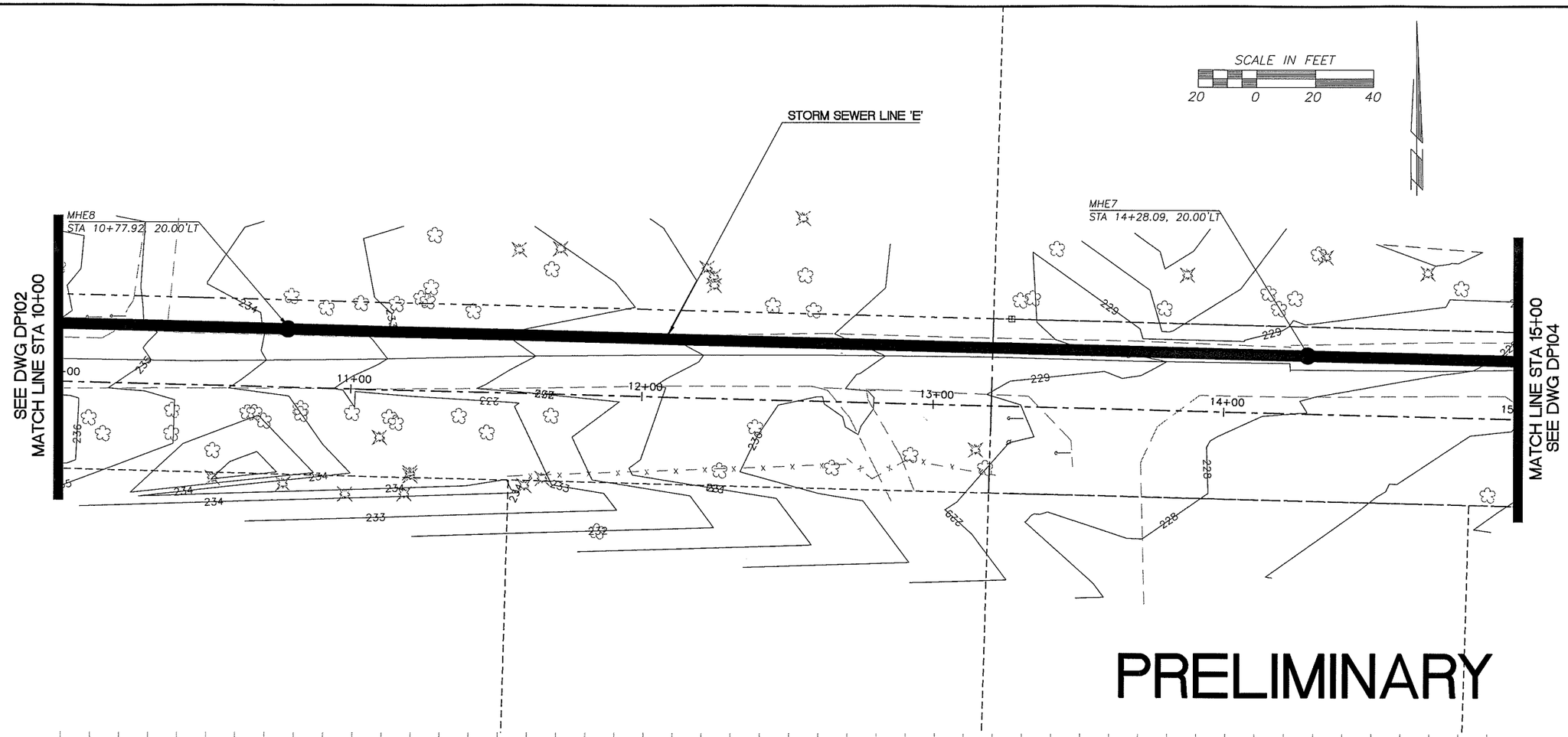
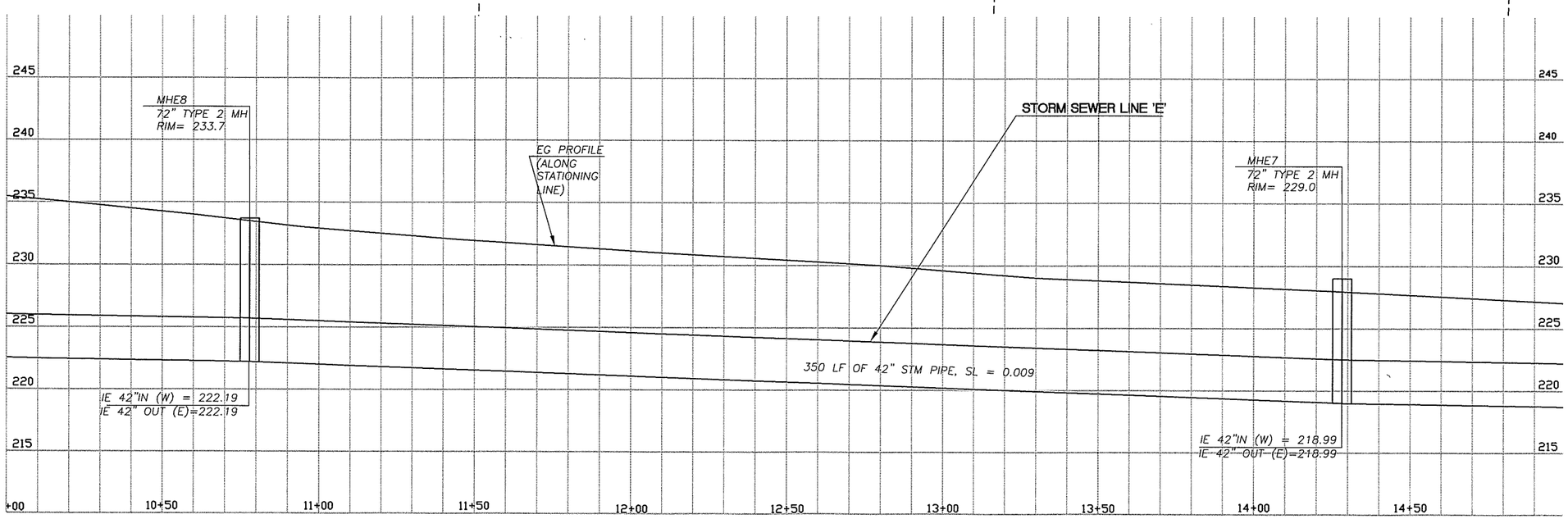


PRELIMINARY



DESIGNED	JM
DRAWN	RK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/31/04
DWG:	DP103
SHEET	OF

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MICHAEL STEVEN JOHN
PROFESSIONAL ENGINEER
EXPIRES-OCT 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD: DRAINAGE PLAN
NE 110TH STREET (STA 10+00 TO STA 15+00)

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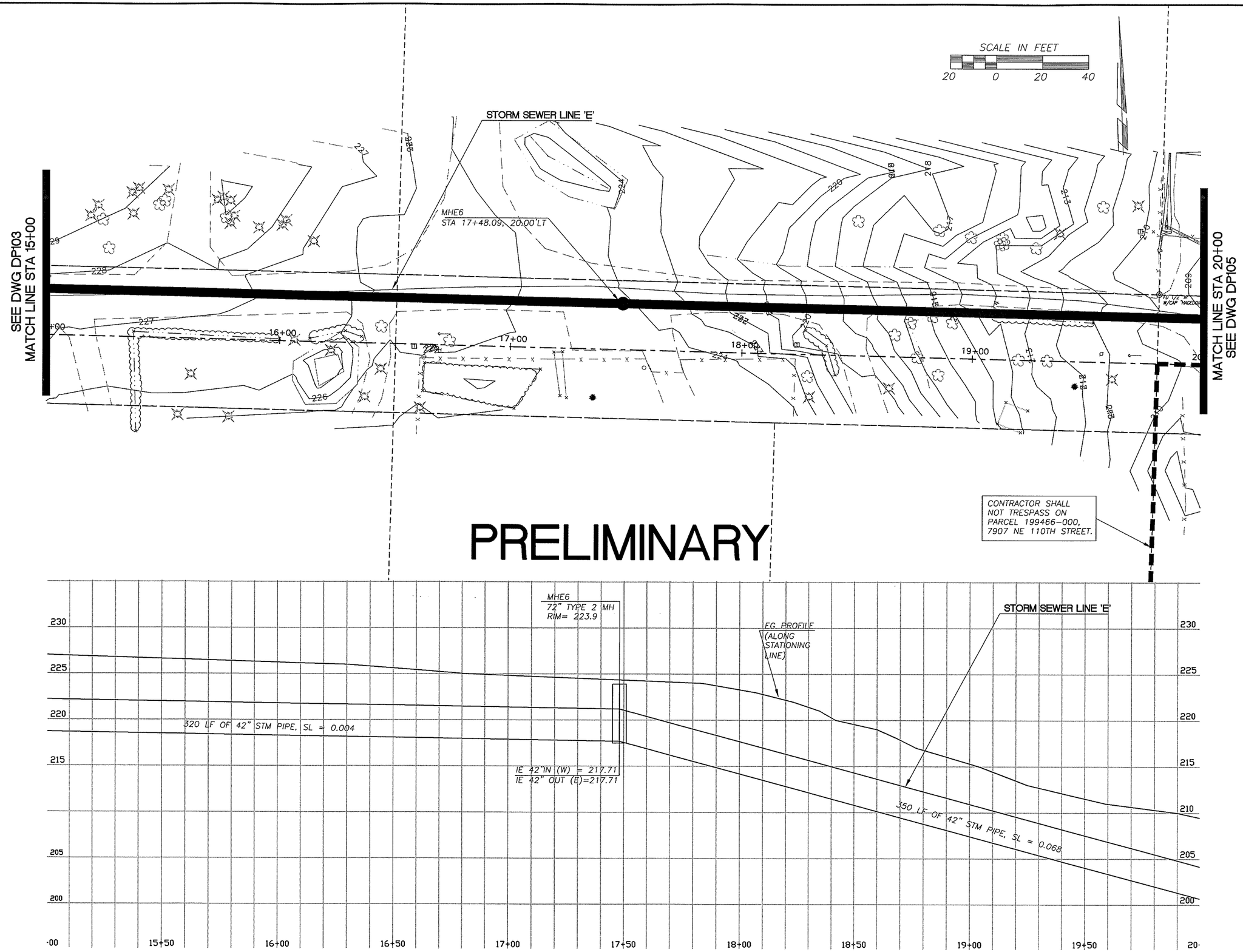

DESIGNED	JM
DRAWN	RK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/31/04
DWG:	DP104
SHEET	OF

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STATE OF WASHINGTON
MICHAEL S. BISHOP
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD: DRAINAGE PLAN
NE 110TH STREET (STA 15+00 TO STA 20+00)

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WASHINGTON

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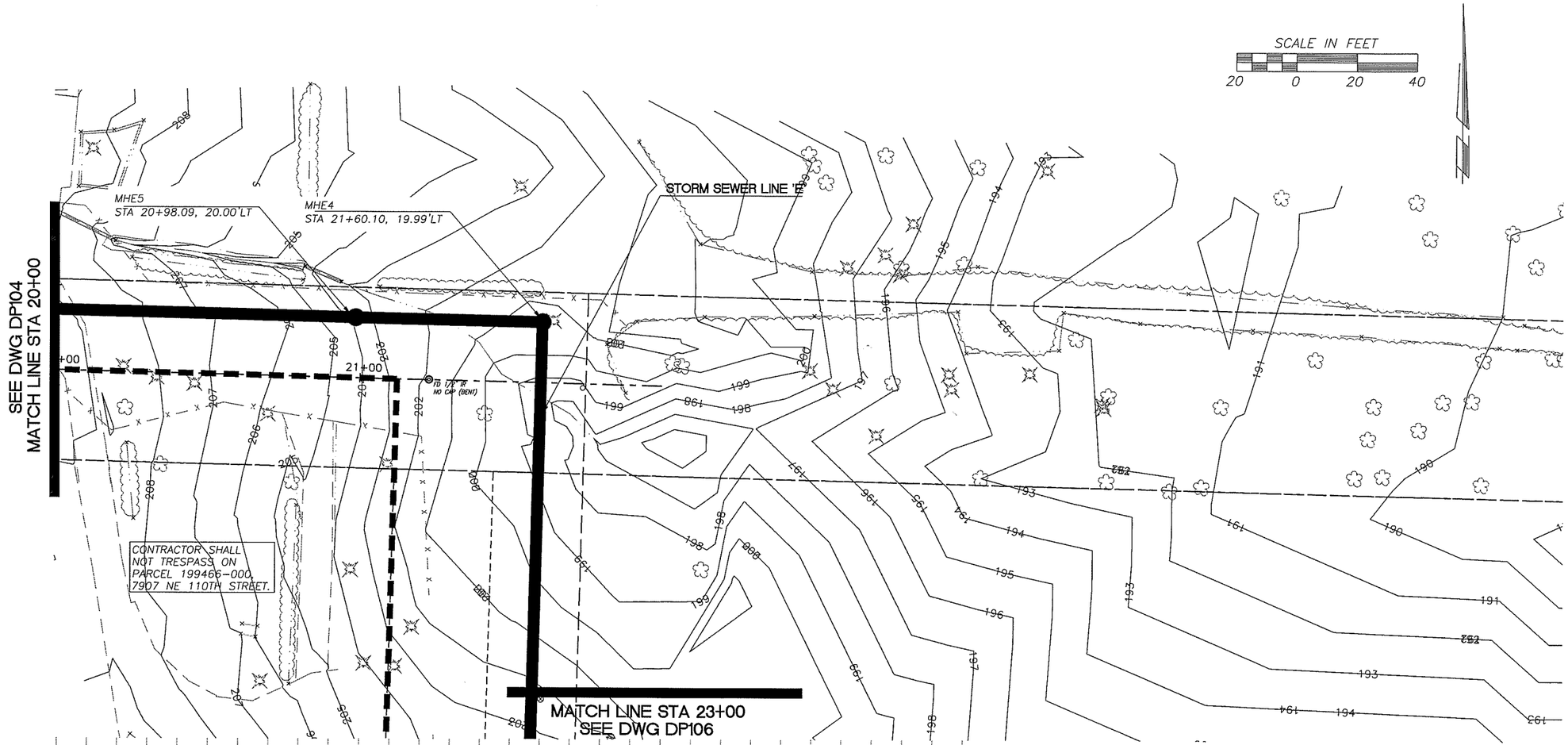

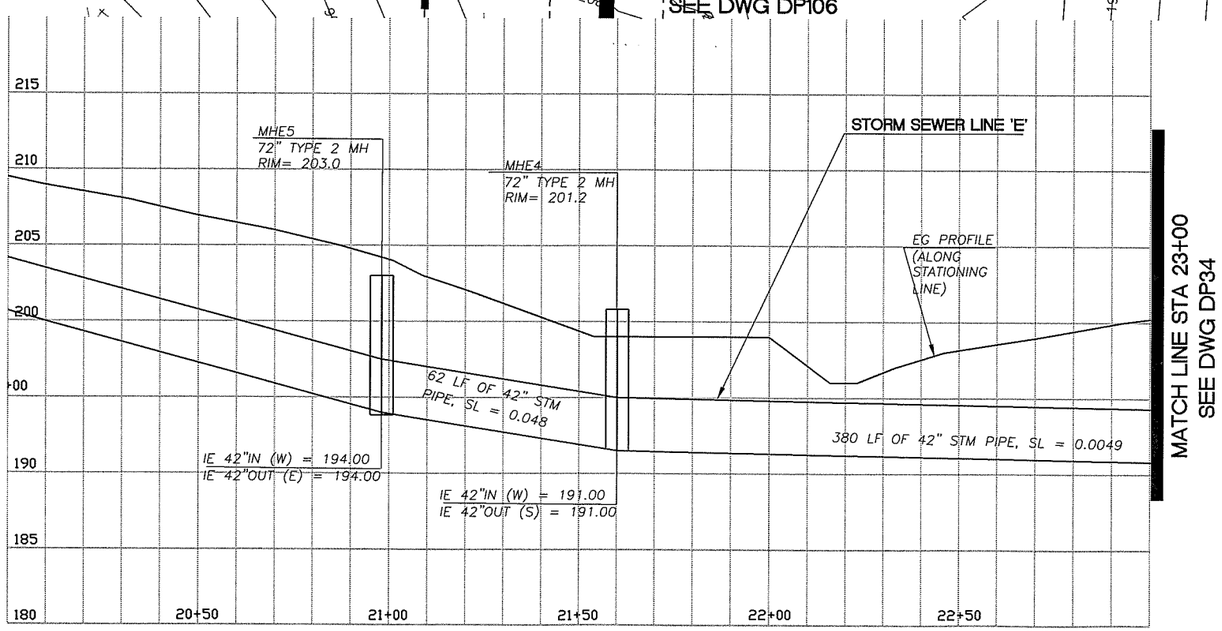

PRELIMINARY

DESIGNED	JM
DRAWN	RK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/31/04
DWG:	DP105
SHEET	OF

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STATE OF WASHINGTON
MIKE MCCOLLUM
PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD; DRAINAGE PLAN
NE 110TH STREET (STA 20+00 TO STA 23+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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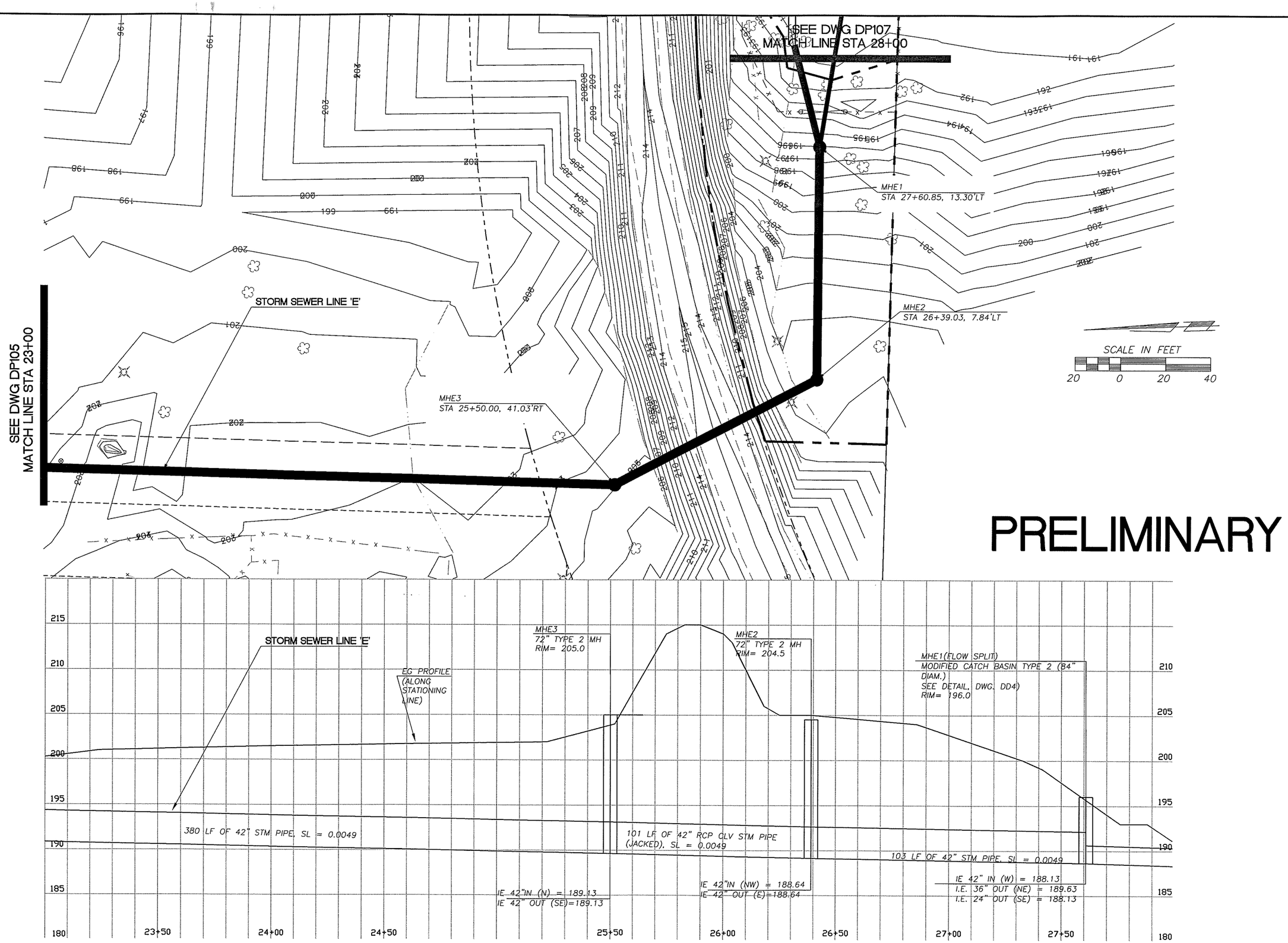

PRELIMINARY

DESIGNED	JM
DRAWN	RK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/31/04
DWG:	DP106
SHEET	OF

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STATE OF WASHINGTON
JAMES ROBERT MILNE
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2003

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD: DRAINAGE PLAN
NE 110TH STREET (STA 23+00 TO STA 28+00)

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WASHINGTON

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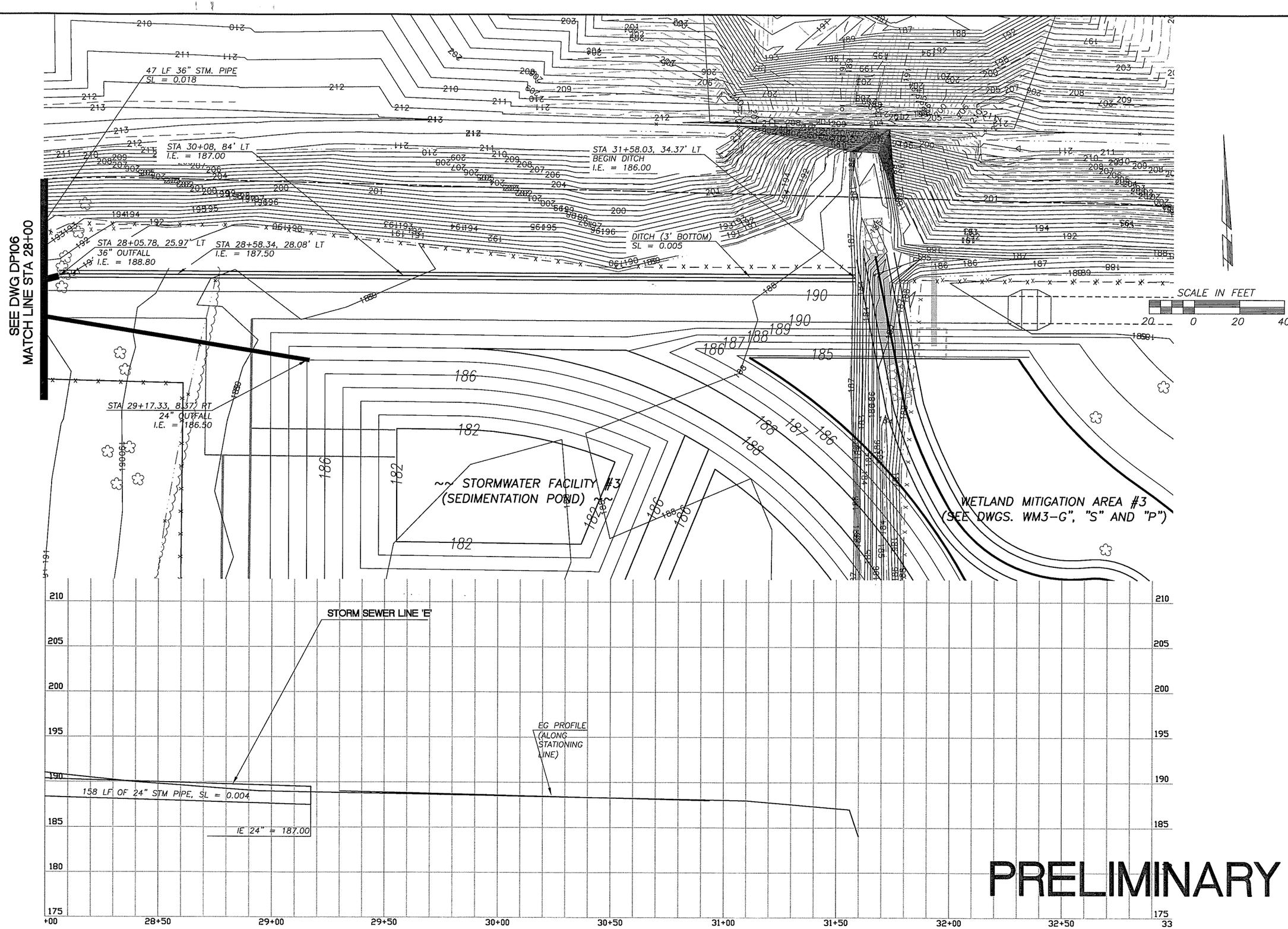

PRELIMINARY

DESIGNED	JM
DRAWN	RK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	11/29/04
DWG:	DP107
SHEET	OF

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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MILAN E. KERLINR
PROFESSIONAL ENGINEER
EXPIRES OCT 17, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD: DRAINAGE PLAN
NE 110TH STREET (STA 28+00 TO STA 33+00

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CLARK COUNTY
WASHINGTON

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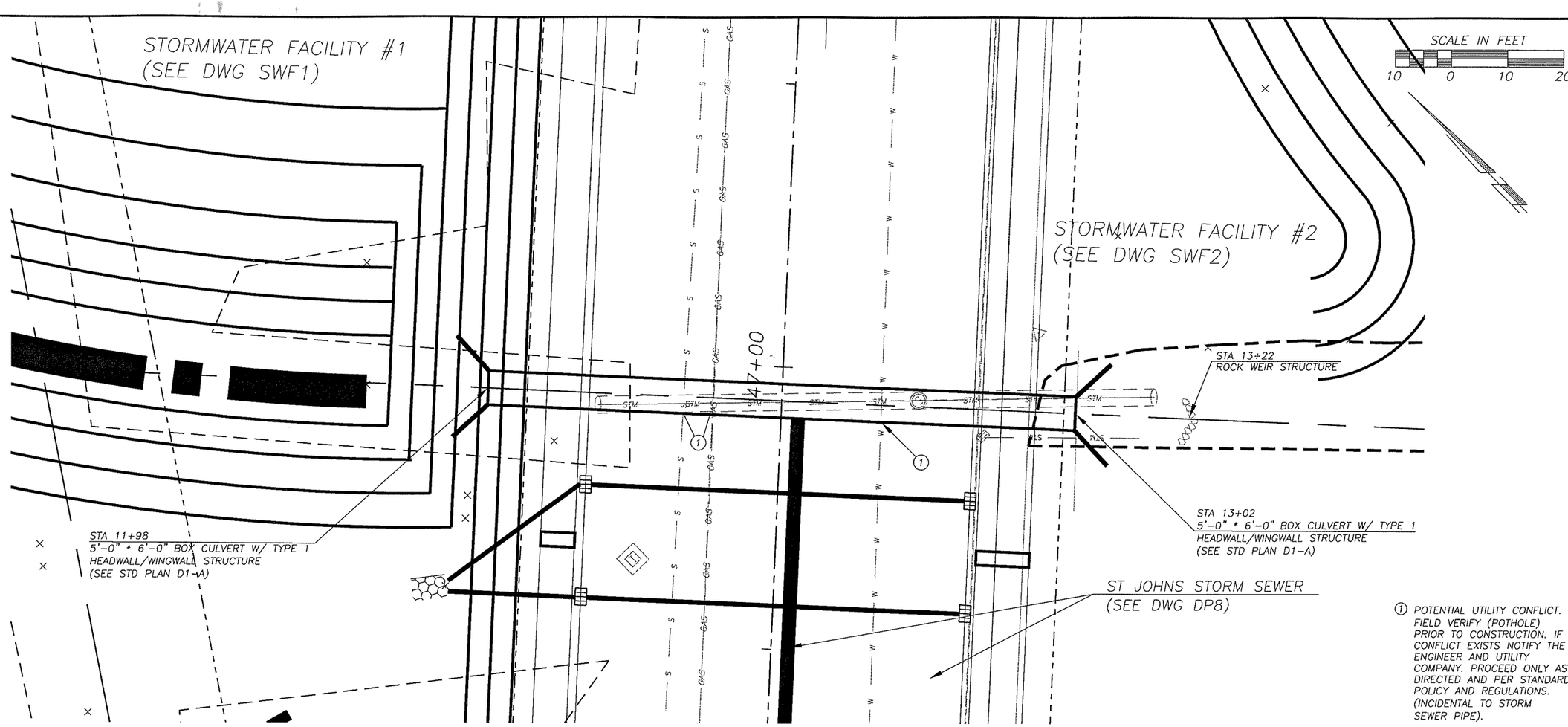
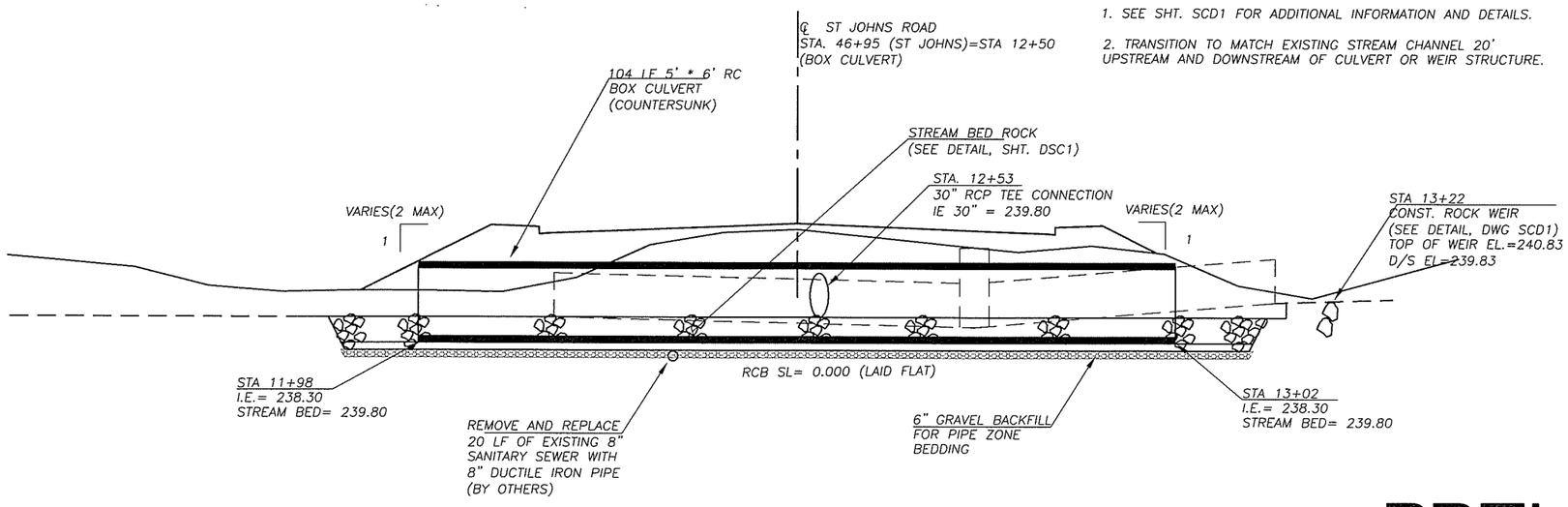


① POTENTIAL UTILITY CONFLICT. FIELD VERIFY (POTHOLE) PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED AND PER STANDARD POLICY AND REGULATIONS. (INCIDENTAL TO STORM SEWER PIPE).

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.



PRELIMINARY

DESIGNED	MME/JM
DRAWN	BAK
CRP	301422
HOR.	1"=10'
VERT.	1"=5'
DATE	3/31/04
DWG:	DP201
SHEET	OF

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MICHAEL E. MILLER
STATE OF WASHINGTON
31148
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 7, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72NE)
LALONDE CREEK CULVERT #1 (BOX CULVERT)

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CLARK COUNTY
WASHINGTON

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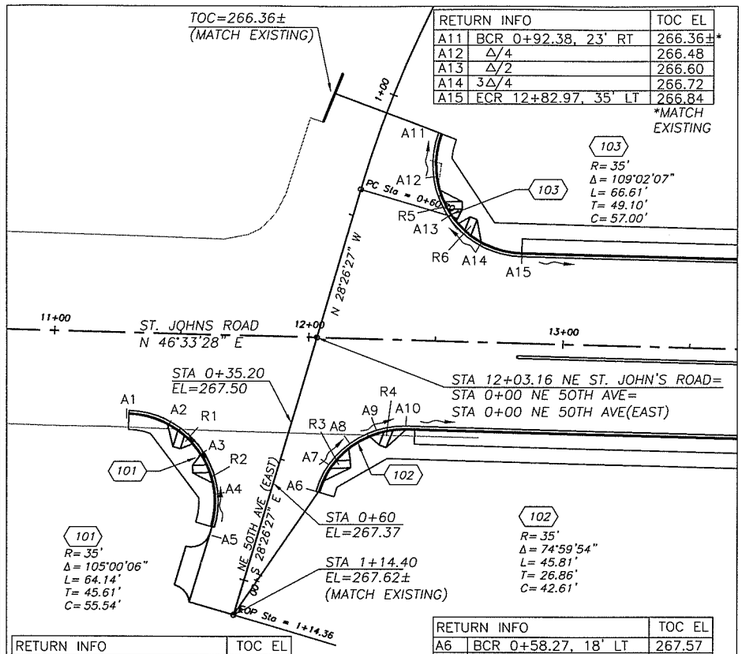
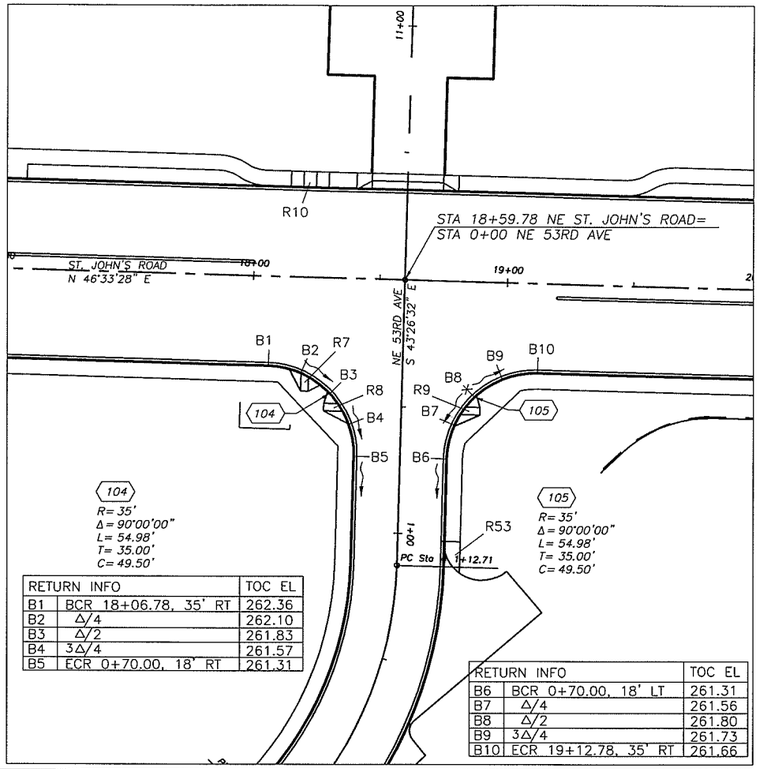


RETURN INFO		TOC EL
A1	BCR 11+29.53, 35' RT	268.80
A2	Δ/4	268.49
A3	Δ/2	267.87
A4	3Δ/4	267.56
A5	ECR 0+86.67, 18' RT	267.63

RETURN INFO		TOC EL
A6	BCR 0+58.27, 18' LT	267.57
A7	Δ/4	267.53
A8	Δ/2	267.49
A9	3Δ/4	267.45
A10	ECR 12+39.27, 35' RT	267.40

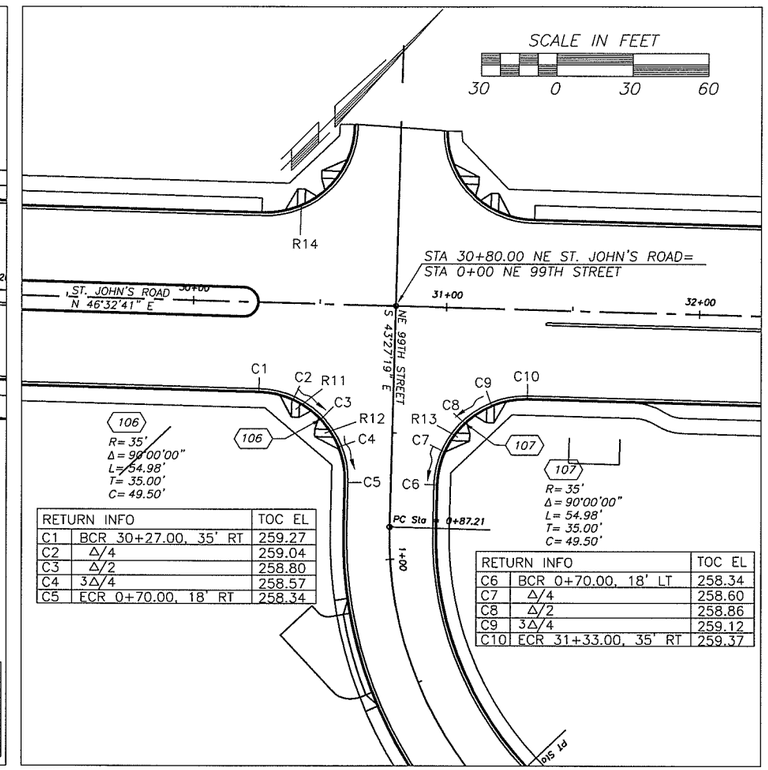
RETURN INFO		TOC EL
A11	BCR 0+92.38, 23' RT	266.36±*
A12	Δ/4	266.48
A13	Δ/2	266.60
A14	3Δ/4	266.72
A15	ECR 12+82.97, 35' LT	266.84

*MATCH EXISTING



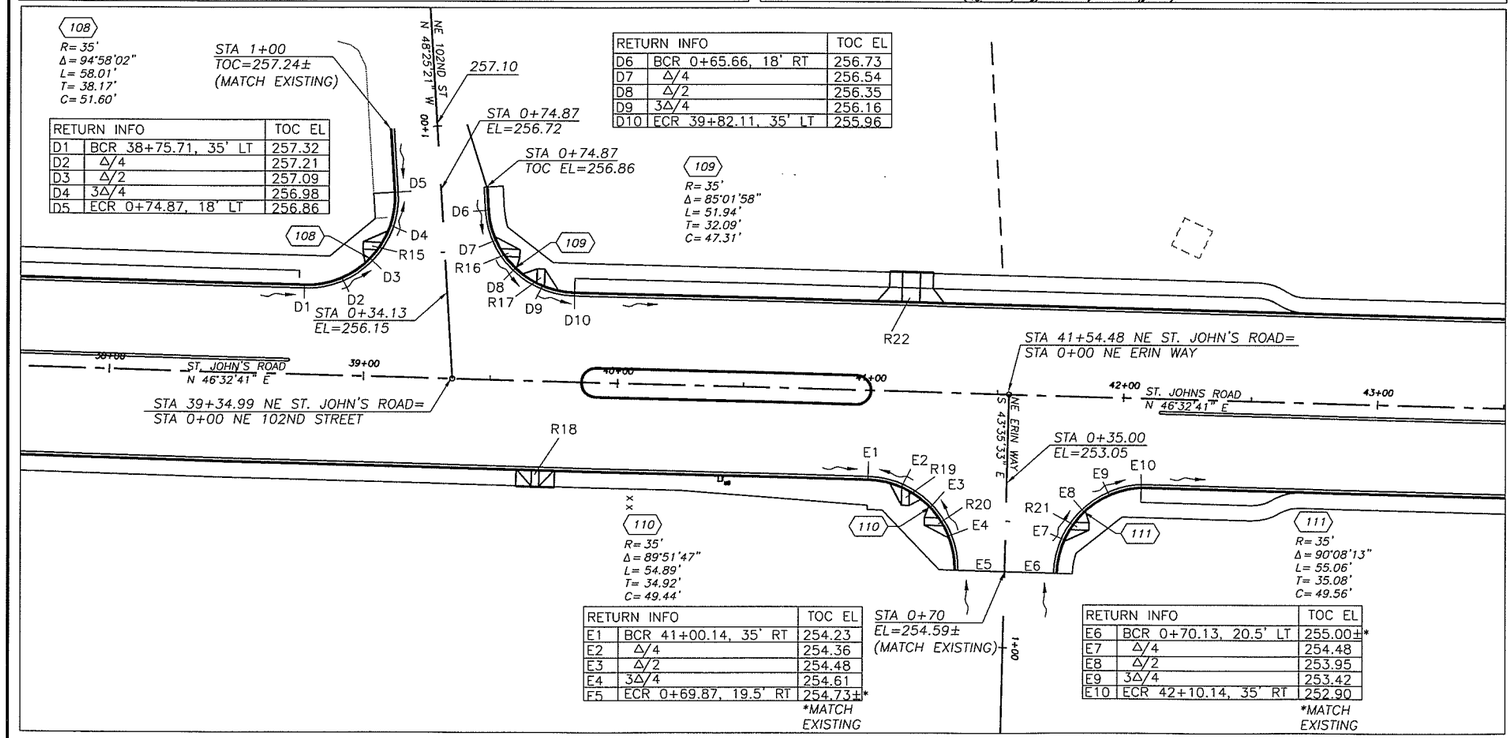
RETURN INFO		TOC EL
B1	BCR 18+06.78, 35' RT	262.36
B2	Δ/4	262.10
B3	Δ/2	261.83
B4	3Δ/4	261.57
B5	ECR 0+70.00, 18' RT	261.31

RETURN INFO		TOC EL
B6	BCR 0+70.00, 18' LT	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 0+74.87, 18' LT	256.86

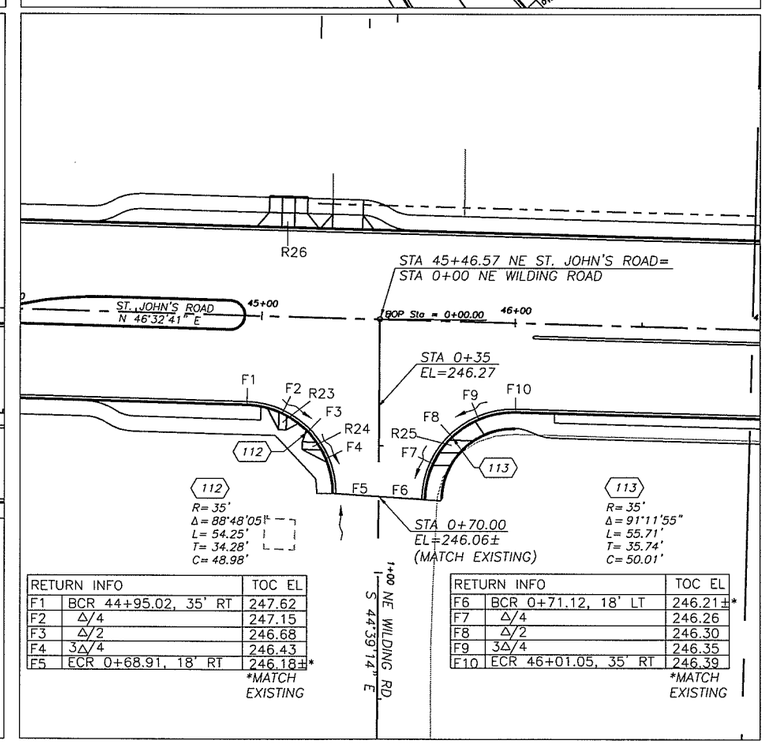
RETURN INFO		TOC EL
D6	BCR 0+65.66, 18' RT	256.73
D7	Δ/4	256.54
D8	Δ/2	256.35
D9	3Δ/4	256.16
D10	ECR 39+82.11, 35' LT	255.96

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 0+69.87, 19.5' RT	254.73±*

*MATCH EXISTING

RETURN INFO		TOC EL
E6	BCR 0+70.13, 20.5' LT	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 0+68.91, 18' RT	246.18±*

*MATCH EXISTING

RETURN INFO		TOC EL
F6	BCR 0+71.12, 18' LT	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

DESIGNED	ME
DRAWN	BAK
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	101
SHEET	OF

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MICHAEL M. ENDRICK STATE OF WASHINGTON 22000 REGISTERED PROFESSIONAL ENGINEER EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND) INTERSECTION PLAN

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CLARK COUNTY WASHINGTON

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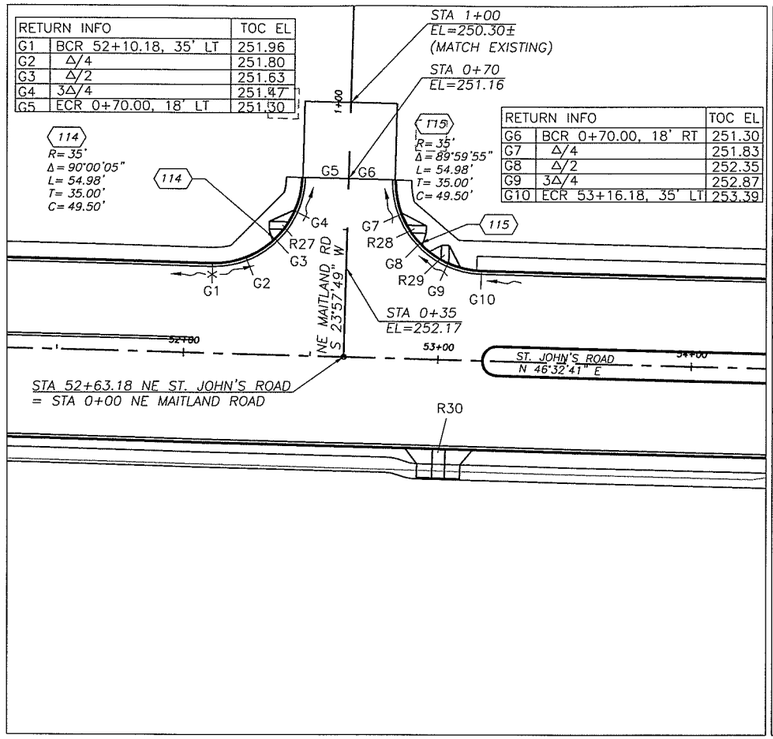
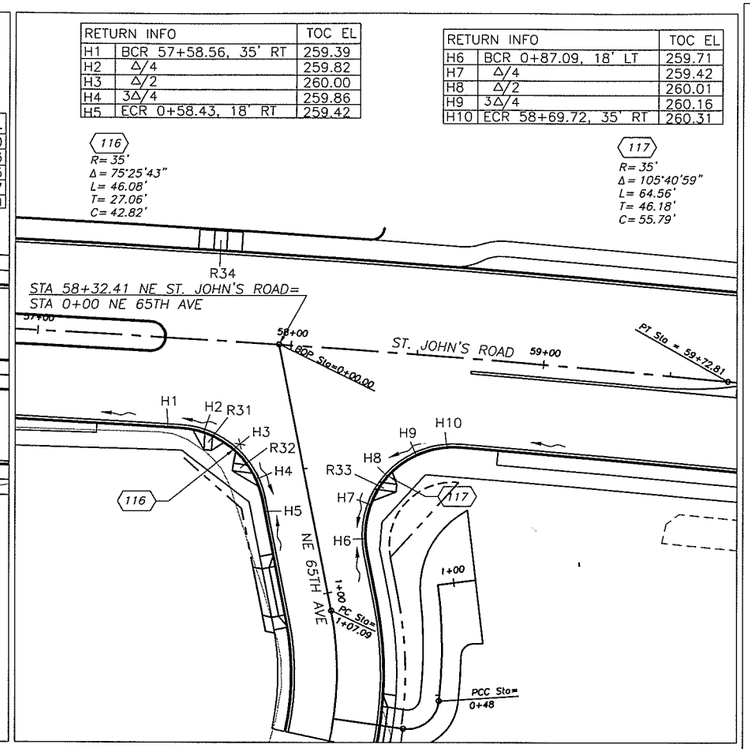


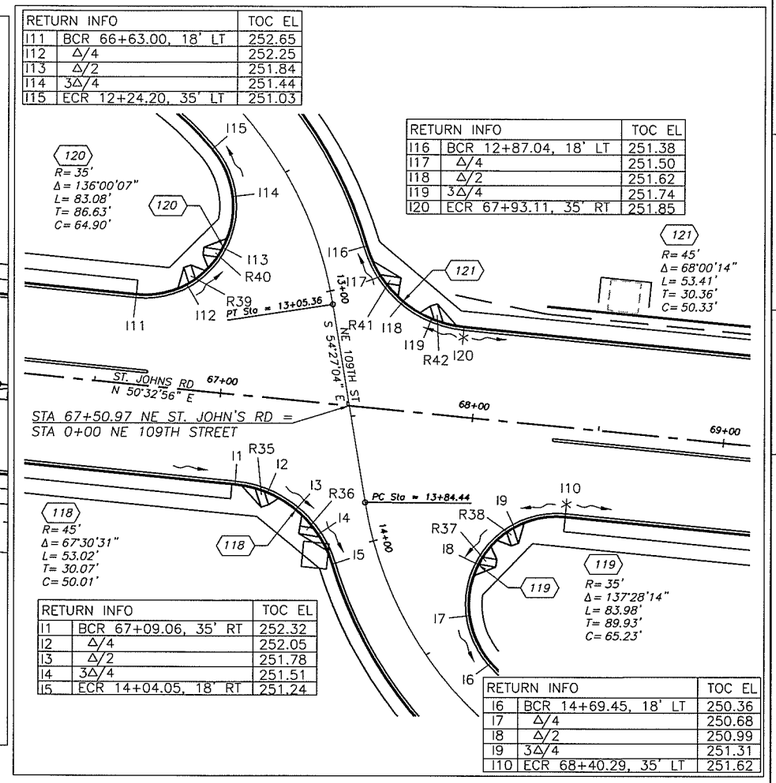
RETURN INFO		TOC EL
G1	BCR 52+10.18, 35' LT	251.96
G2	Δ/4	251.80
G3	Δ/2	251.63
G4	3Δ/4	251.47
G5	ECR 0+70.00, 18' LT	251.30

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 0+58.43, 18' RT	259.42

RETURN INFO		TOC EL
H6	BCR 0+87.09, 18' LT	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

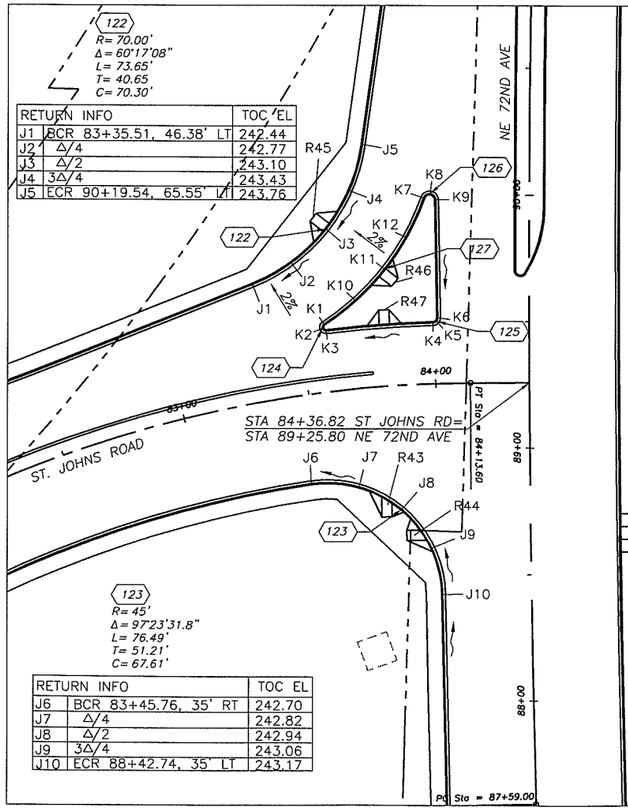


RETURN INFO		TOC EL
I11	BCR 66+63.00, 18' LT	252.65
I12	Δ/4	252.25
I13	Δ/2	251.84
I14	3Δ/4	251.44
I15	ECR 12+24.20, 35' LT	251.03

RETURN INFO		TOC EL
I16	BCR 12+87.04, 18' 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 14+04.05, 18' 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+40.29, 35' LT	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 90+19.54, 65.55' LT	243.76

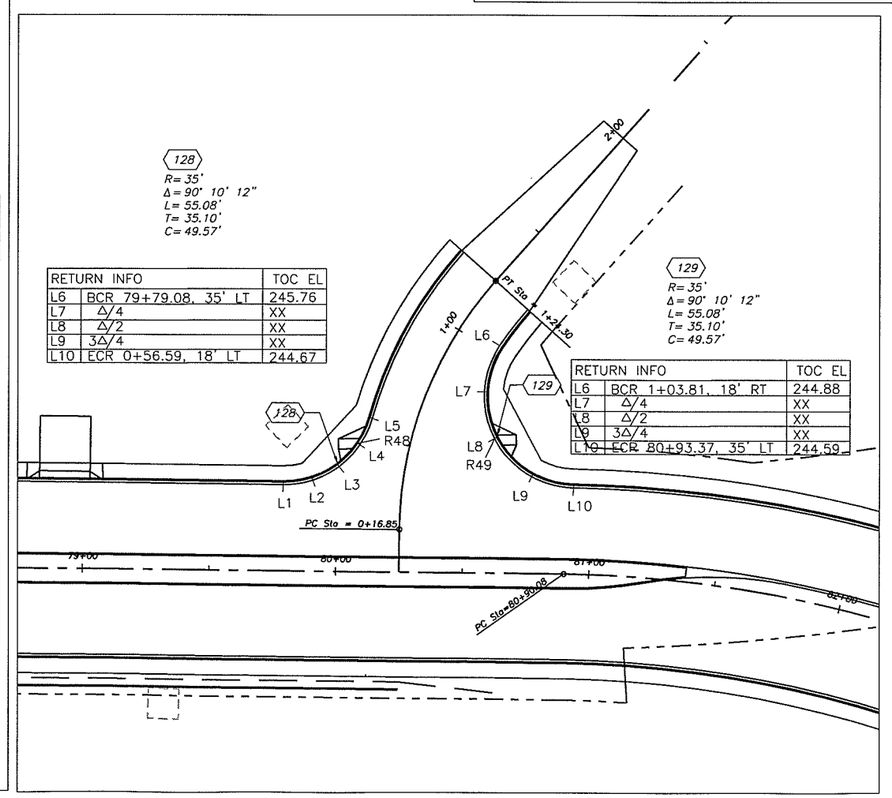
RETURN INFO		TOC EL
J6	BCR 83+45.76, 35' RT	242.70
J7	Δ/4	242.82
J8	Δ/2	242.94
J9	3Δ/4	243.06
J10	ECR 88+42.74, 35' LT	243.17

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 89+51.48, 35.94' LT	243.99

RETURN INFO		TOC EL
K7	BCR 89+98.69, 41.71' LT	244.18
K8	2Δ	244.21
K9	ECR 89+97.99, 36.84' 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
K17	ECR 89+98.69, 41.71' LT	244.18



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 0+56.59, 18' LT	244.67

RETURN INFO		TOC EL
L6	BCR 1+03.81, 18' RT	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
R1	1
R2	1
R3	1
R4	1
R5	1
R6	1
R7	1
R8	1
R9	1
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R13	1
R14	1
R15	1
R16	1
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)

SCALE IN FEET

30 0 30 60

DESIGNED	MME
DRAWN	BAK
CRP	301422
HOR.	1"=30'
VERT.	NA
DATE	11/29/04
DWG:	102
SHEET	OF

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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
MICHAEL M. EURICK
20040
REGISTERED PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
INTERSECTION PLAN

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CLARK COUNTY
WASHINGTON

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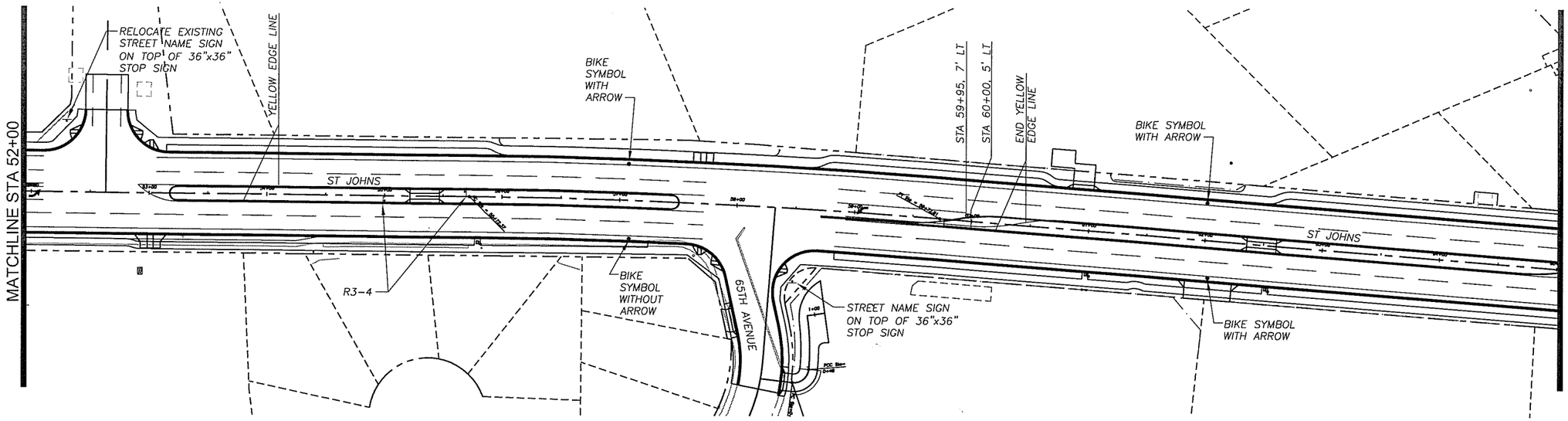

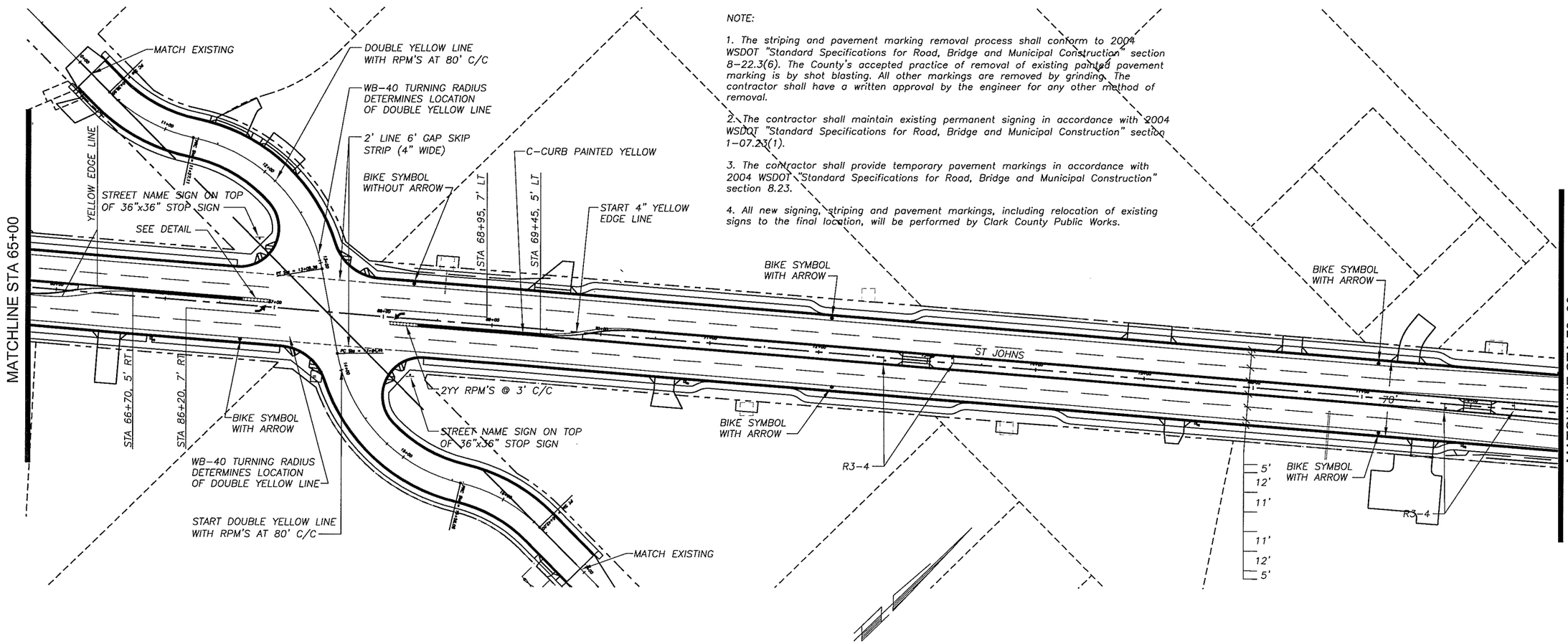

NOTE:

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.

SCALE IN FEET

50 0 50 100

*LANE LINES ARE 12' LINE, 25' SKIP

DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	1"=50'
VERT.	NA
DATE	3/18/02
DWG:	SS02
SHEET	OF

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STATE OF WASHINGTON KEITH M. BOWERS 20838 REGISTERED PROFESSIONAL ENGINEER EXPIRES JANUARY 01, 2004

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
SIGNING AND STRIPING

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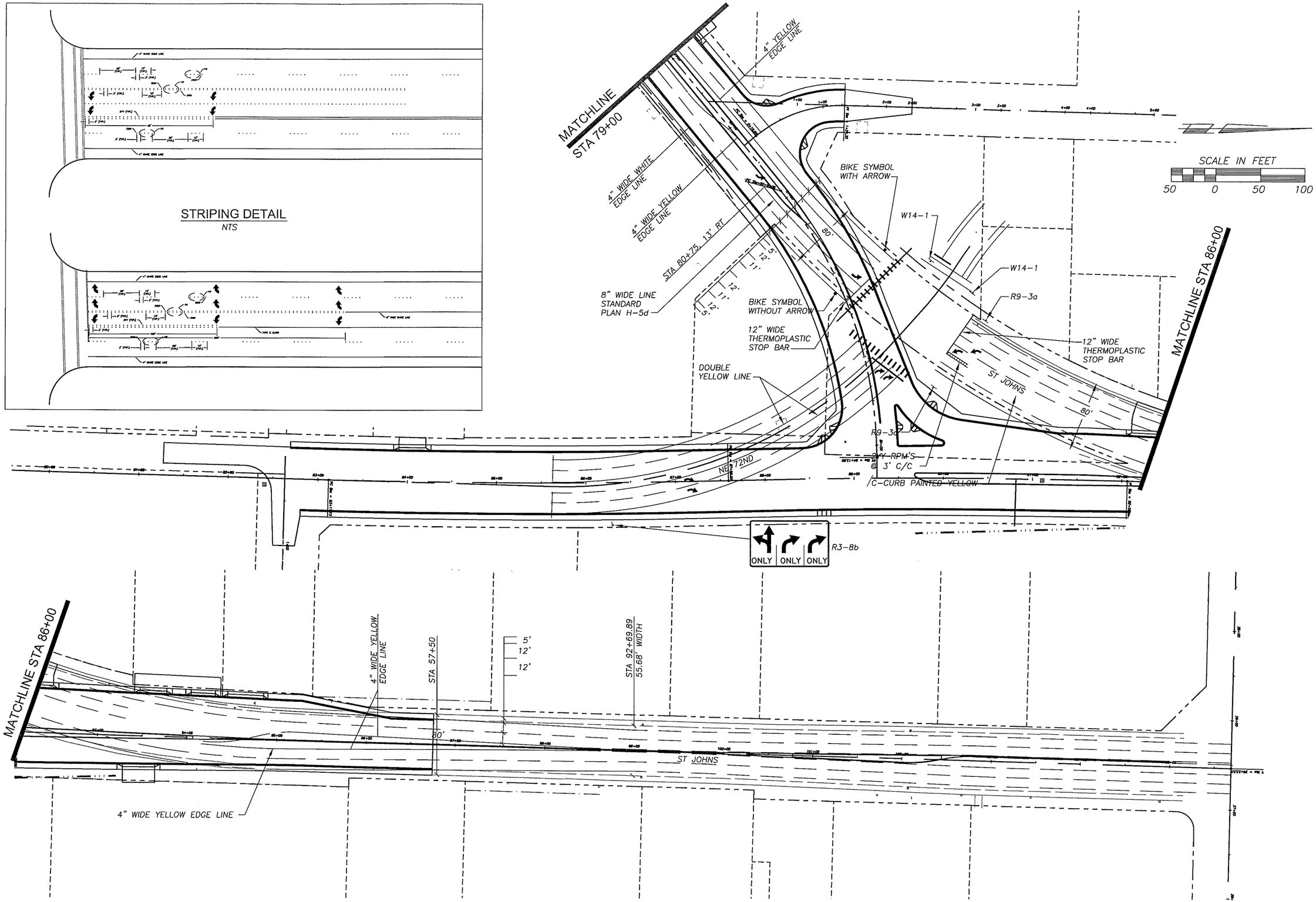
CLARK COUNTY WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\SS01-3.dwg, 11/24/2004 3:42:43 PM, kerlinr



*LANE LINES ARE 12' LINE, 25' SKIP

DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	1"=50'
VERT.	NA
DATE	3/18/02
DWG:	SS03
SHEET	OF

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STATE OF WASHINGTON
KIRAN K. KUMAR
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JAN. 01, 2004

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
SIGNING AND STRIPING PLAN

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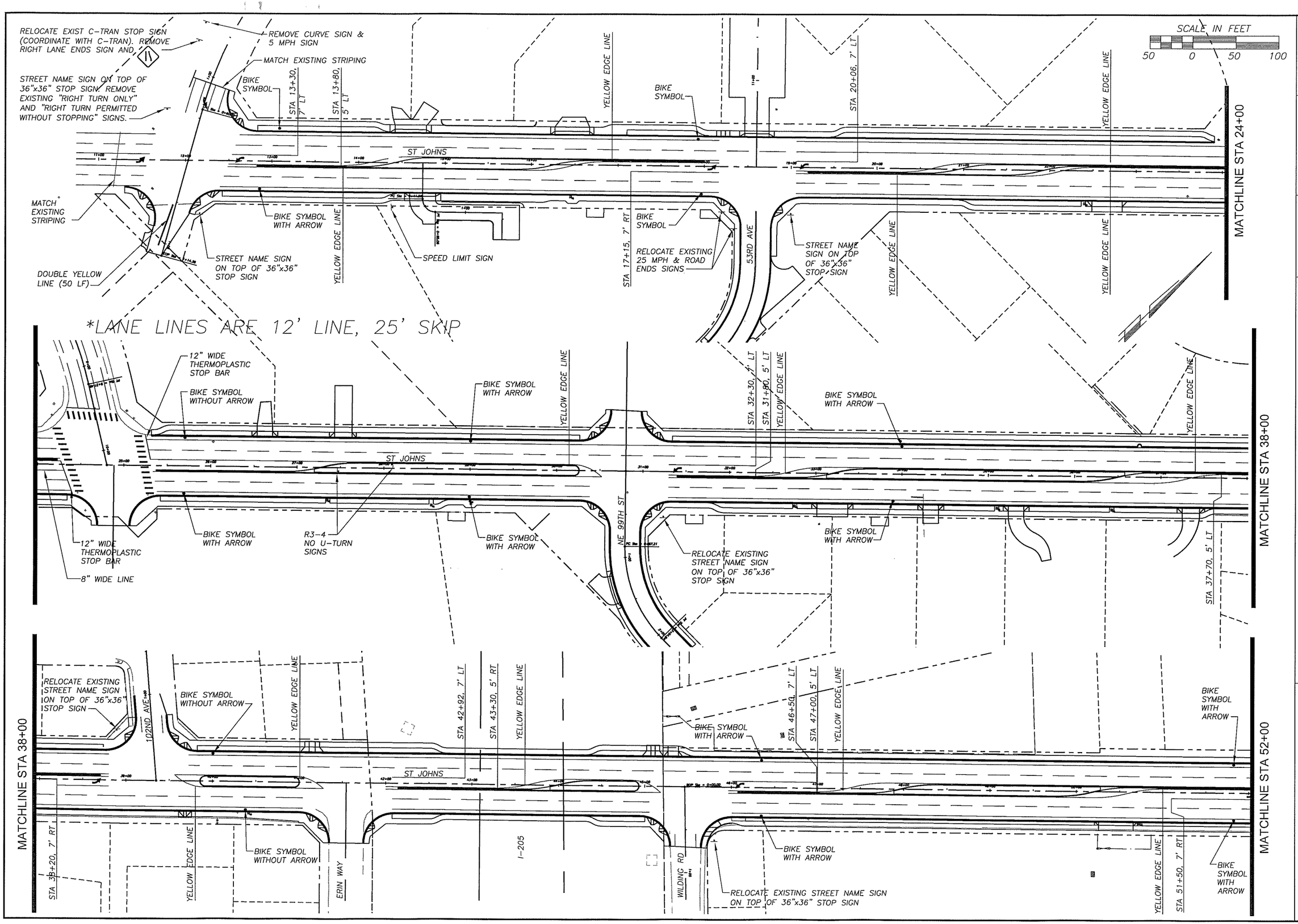
CLARK COUNTY
WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\SS01-3.dwg, 11/24/2004 3:43:58 PM, kerlinr



DESIGNED	MME
DRAWN	KMB
CRP	301422
HOR.	1"=50'
VERT.	NA
DATE	3/18/02
DWG:	SS01
SHEET	OF

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

KIRAN KUMAR STATE OF WASHINGTON 35393 REGISTERED PROFESSIONAL ENGINEER EXPIRES JAN. 30, 2004

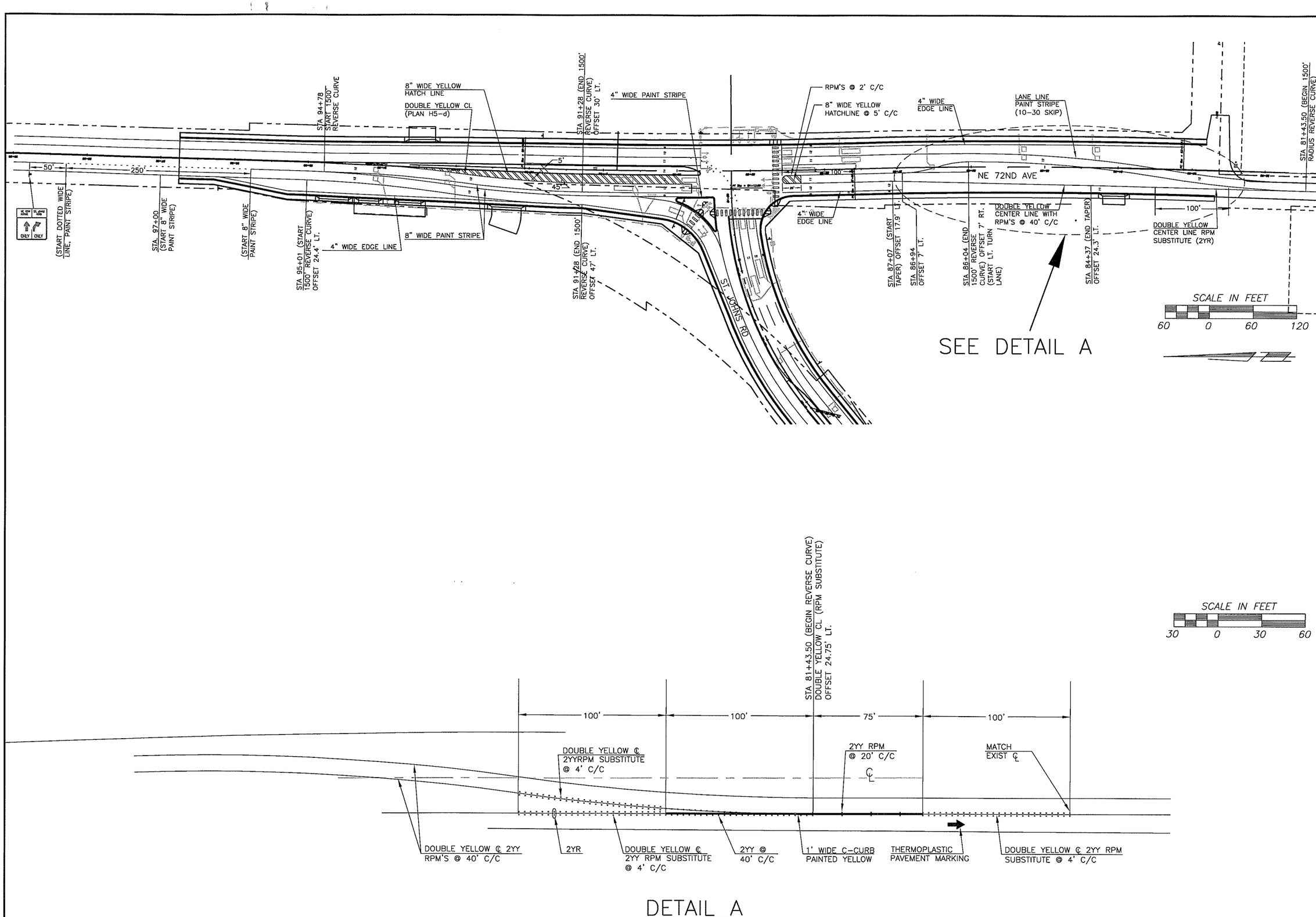
DESIGN & ENGINEERING DIVISION DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND) SIGNING AND STRIPING PLAN

proud past, promising future

CLARK COUNTY WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\DWGS\SS01-3.dwg, 11/24/2004 3:42:15 PM, kerlinr



DETAIL A

DESIGNED	EK
DRAWN	EK
CRP	301422
HOR.	1"=60'
VERT.	NA
DATE	3/3/04
DWG:	STR3
SHEET	OF

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

KRAM STATE OF WASHINGTON 22303 PROFESSIONAL ENGINEER EXPIRES JAN. 07, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS ROAD
INTERIM INTERSECTION STRIPING PLAN

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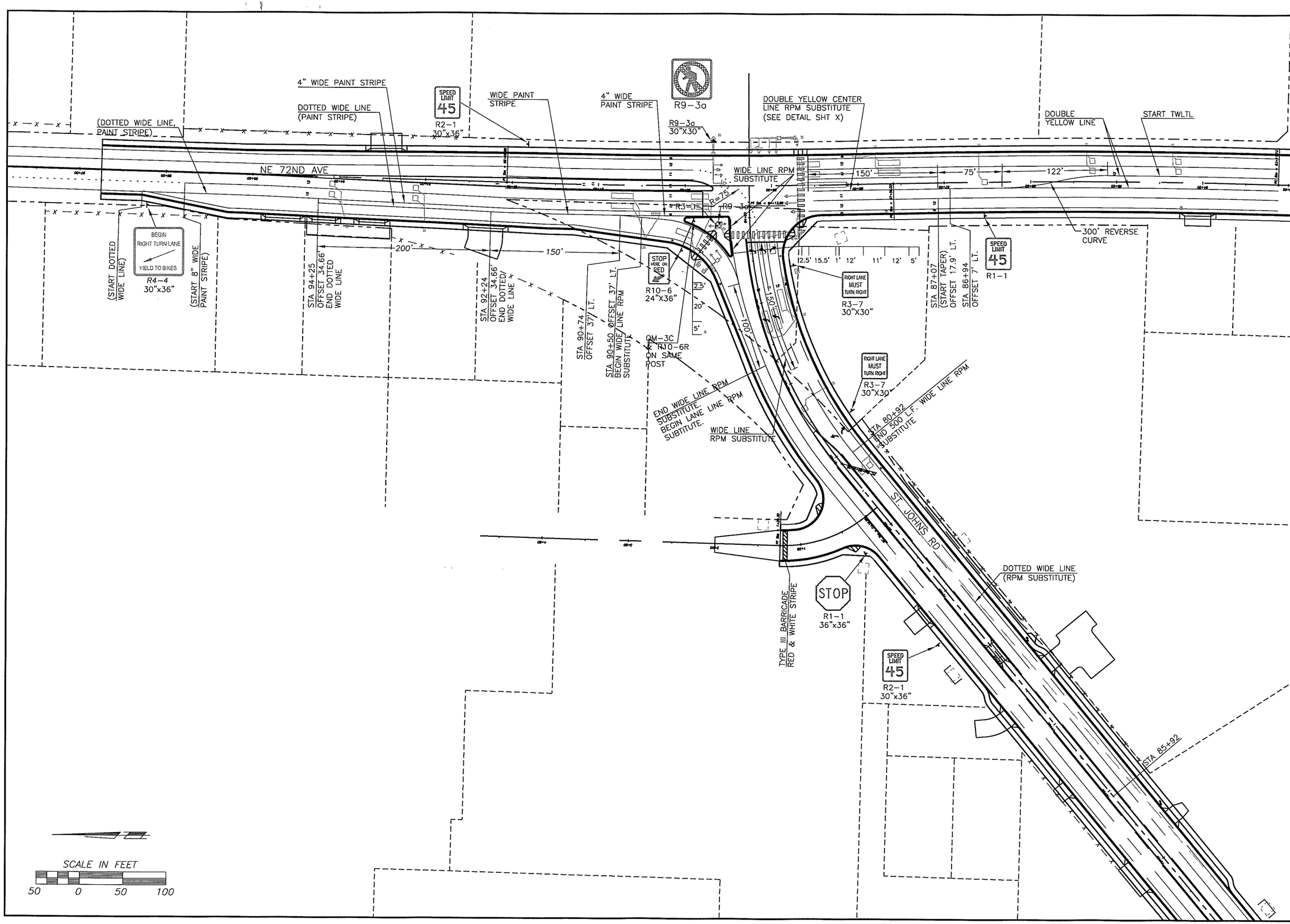
CLARK COUNTY WASHINGTON

N:\CIP\PROJECTS\301422-ST.Johns-50thTo72nd\DESIGN\Signal\STJ-72ND\SIG\SSINTERIM-STR3.dwg, Layout1, 11/23/2004 3:17:36 PM, begleyk



DESIGNED	EK
DRAWN	EK
CRP	301422
HOR.	1"=50'
VERT.	NA
DATE	3/3/04
DWG:	STR4
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
KEITH A. MORRISON
19338
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JAN. 20, 2006

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS ROAD
INTERSECTION SIGNING & STRIPING PLAN

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CLARK COUNTY
WASHINGTON

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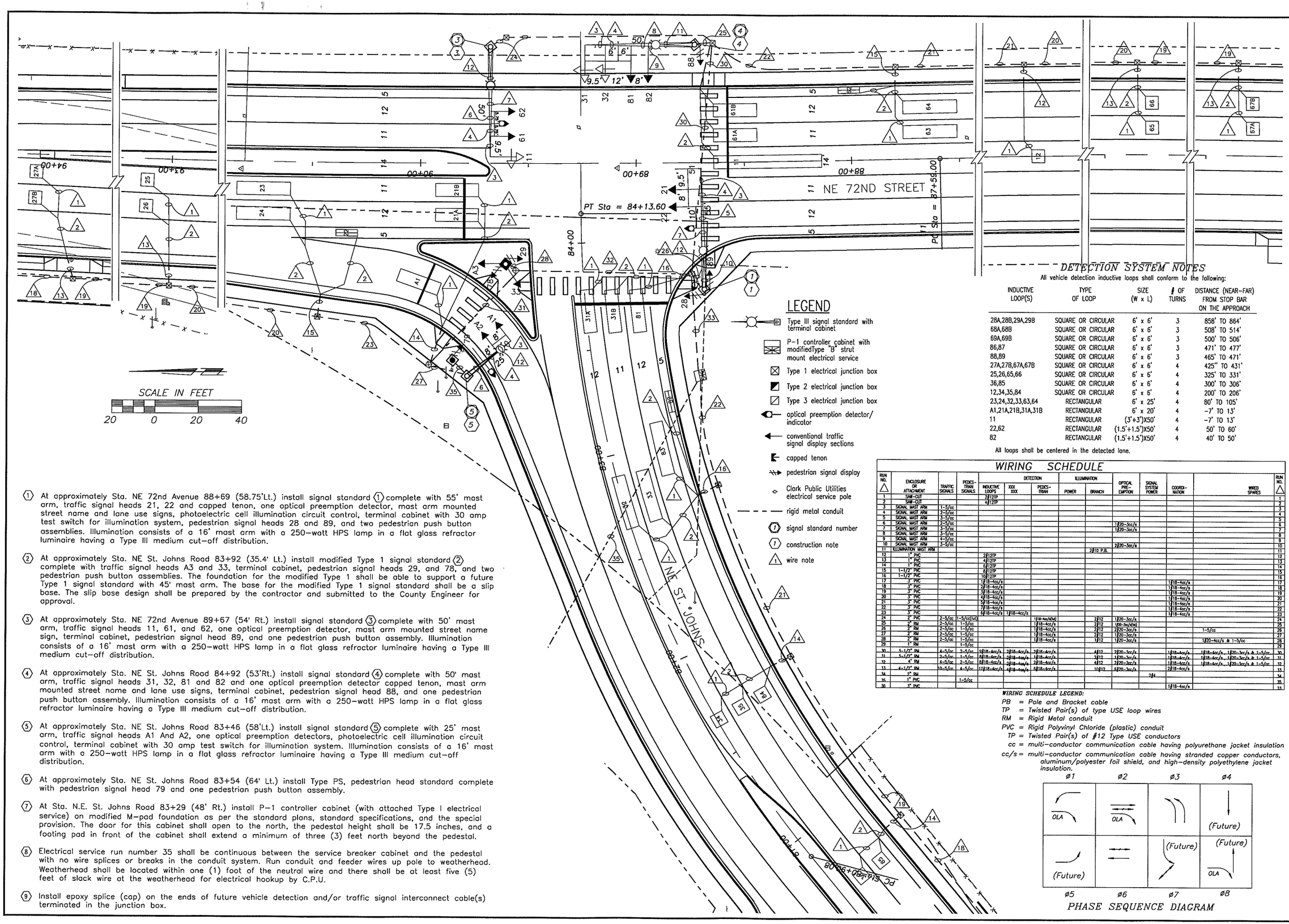

LEGEND

- 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
- signal standard number
- construction note
- wire note

(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.

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							2/20-3cc/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(lut)			1/18-4cc/s(lut)		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(lut)				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
X1	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	X1
X1	3-1/2" RM	2-5/cc	1-5/cc	8/18-4cc/s	2/18-4cc/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	X1
X2	4" 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	X2
X3	4-1/2" RM	10-5/cc	4-5/cc	17/18-4cc/s	4/18-4cc/s	4/18-4cc/s		10/12	6/20-3cc/s		2/18-4cc/s		X3
X4	2" RM									2/4			X4
X5	1" PVC		1-5/cc										X5
X6	1" PVC										1/18-4cc/s		X6

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

DESIGNED	EK
DRAWN	EK
CRP	301422
HOR.	1"=20'
VERT.	NA
DATE	3/3/04
DWG:	TS1
SHEET	OF

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

STATE OF WASHINGTON KRAIG A. VIRSKIS 36836 REGISTERED PROFESSIONAL ENGINEER EXPIRES:JAN. 01, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS ROAD
TRAFFIC SIGNAL PLAN

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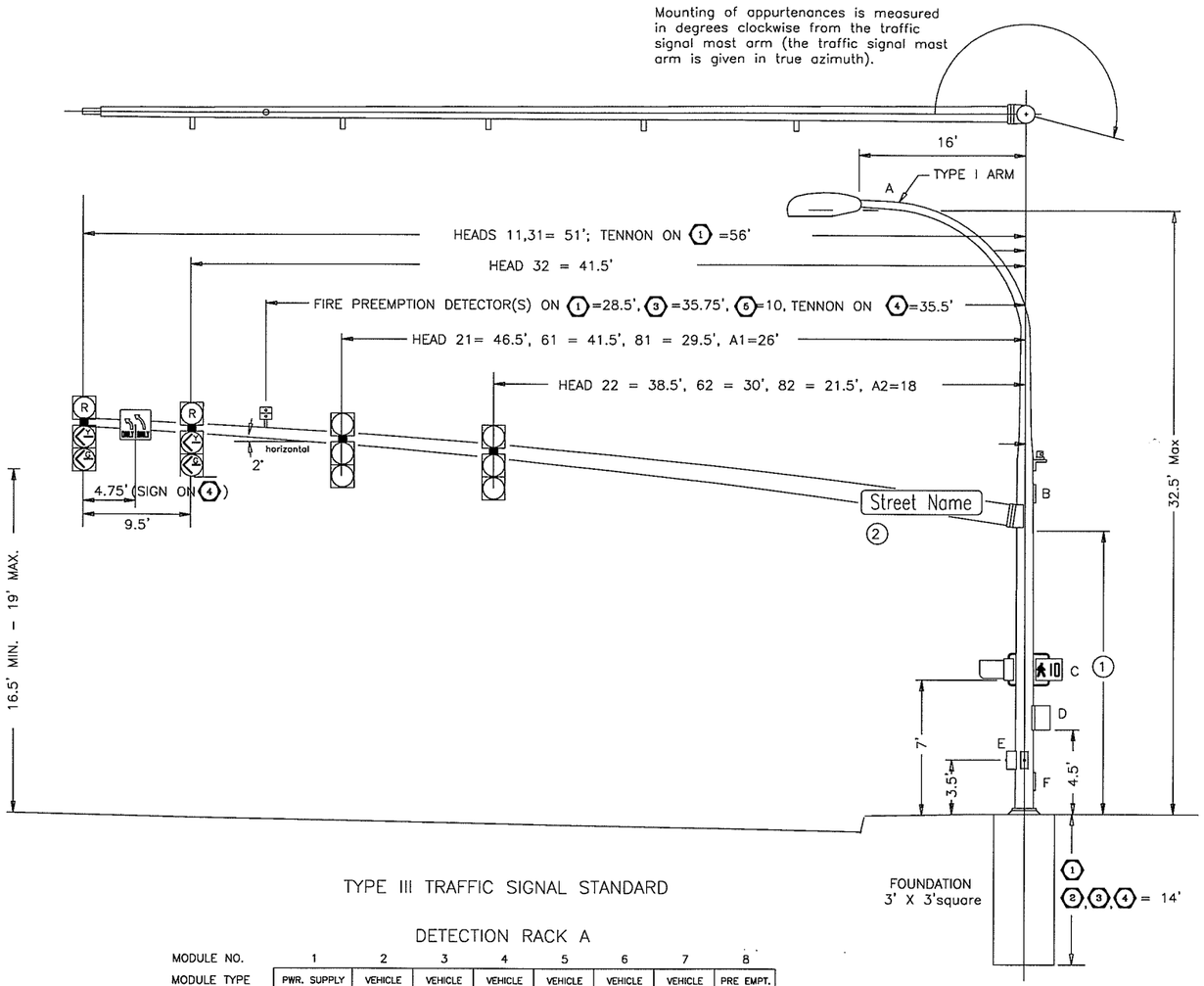
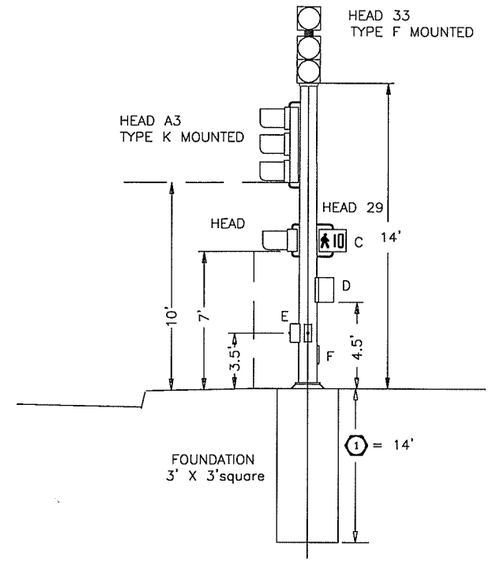
CLARK COUNTY WASHINGTON

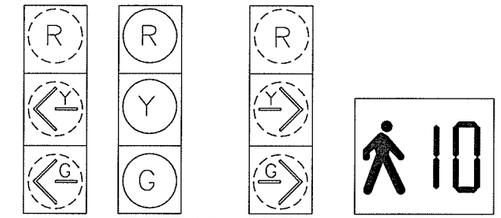
N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\Signals\STJ-72NDS\GIS\TJSTP-TS1.dwg, Layout1, 11/23/2004 3:15:22 PM, beglerjk



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

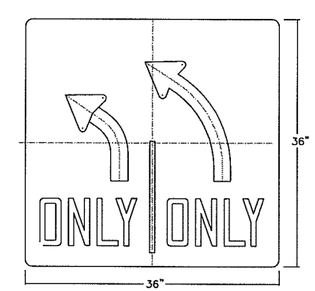
APPURTENANCE ORIENTATION				
SIGNAL STANDARD	1	2	3	4
MAST ARM	2° T.A.	91° T.A.	182° T.A.	271°T.A.
A	0°	0°	0°	0°
B	180°	180°	180°	180°
C	143°	155°	142°	153°
D	143°	155°	142°	153°
E	2°/269°	1°/271°	2°/268°	2°/272°
F	180°	180°	180°	180°

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

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.



LANE CONTROL SIGN FACE DETAILS

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

DESIGNED	EK
DRAWN	EK
CRP	301422
HOR.	NA
VERT.	NA
DATE	
DWG:	TS2
SHEET	OF

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STATE OF WASHINGTON ELIZABETH A. KOMAN 35836 REGISTERED PROFESSIONAL ENGINEER EXPIRES JAN. 01, 2006

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

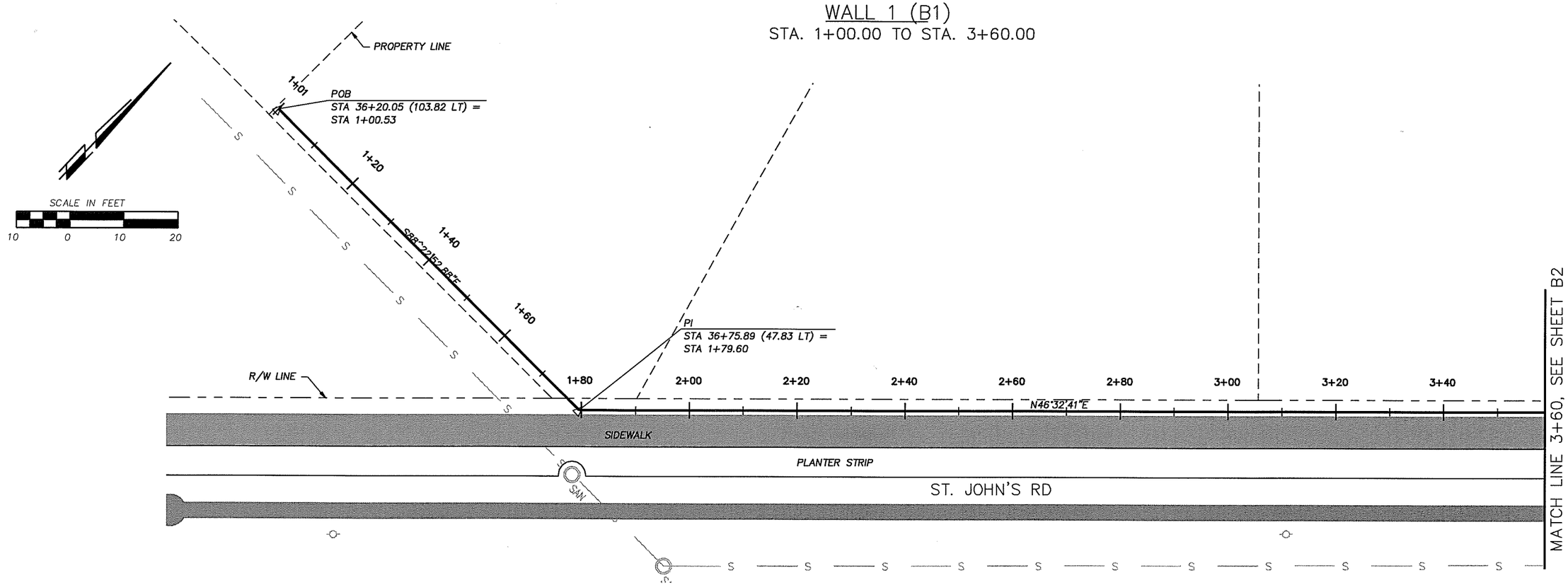
ST. JOHNS ROAD
SIGNAL POLE DETAILS

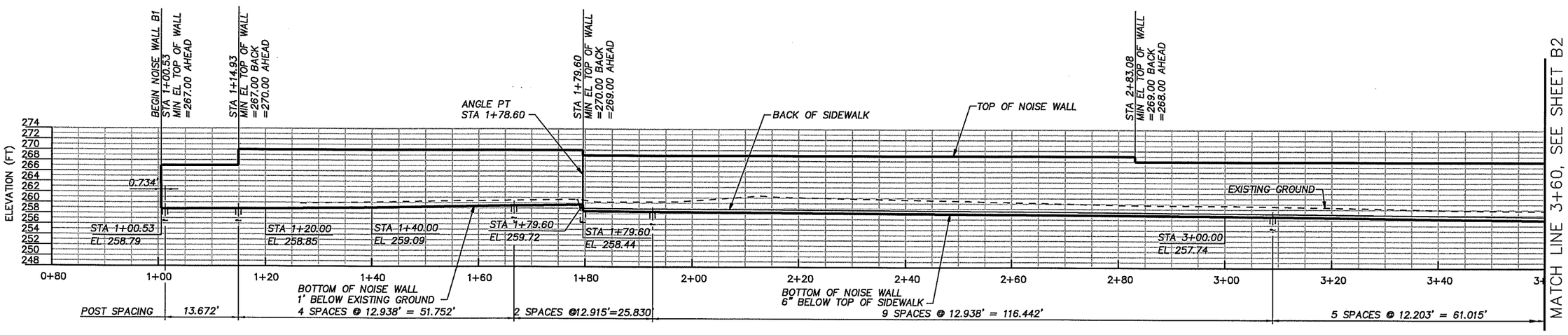
proud past, promising future
CLARK COUNTY WASHINGTON

N:\CIP\PROJECTS\301422-STJohns-50thTo72nd\DESIGN\Signals\STJ-72NDSIGS\SSD-TS2.dwg, Layout1, 11/23/2004 3:16:50 PM, beglerk

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)
RETAINING WALL 1

CHRISTOPHER E. NELSON STATE OF WASHINGTON 13798 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

CLARK COUNTY WASHINGTON

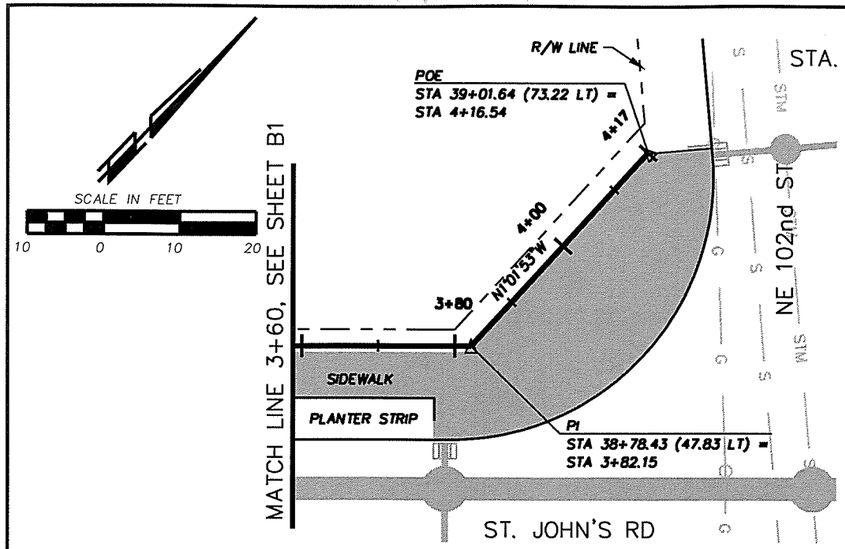
24-NOV-2004 07:57:47

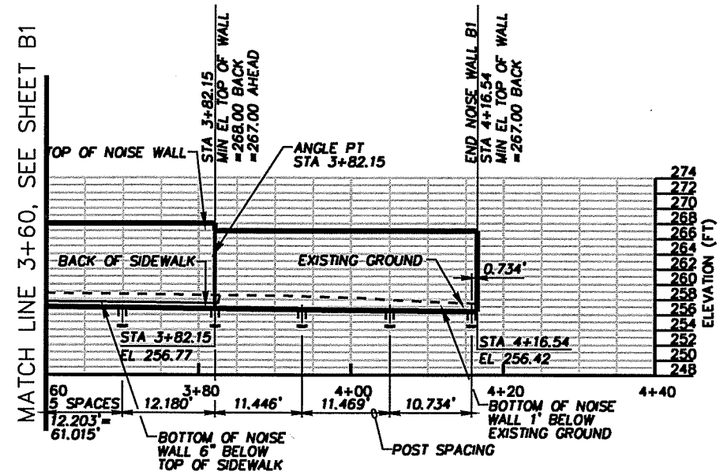
pperalta

NDM:1540831802S7wa01.dlv

WALL 1 (B2)

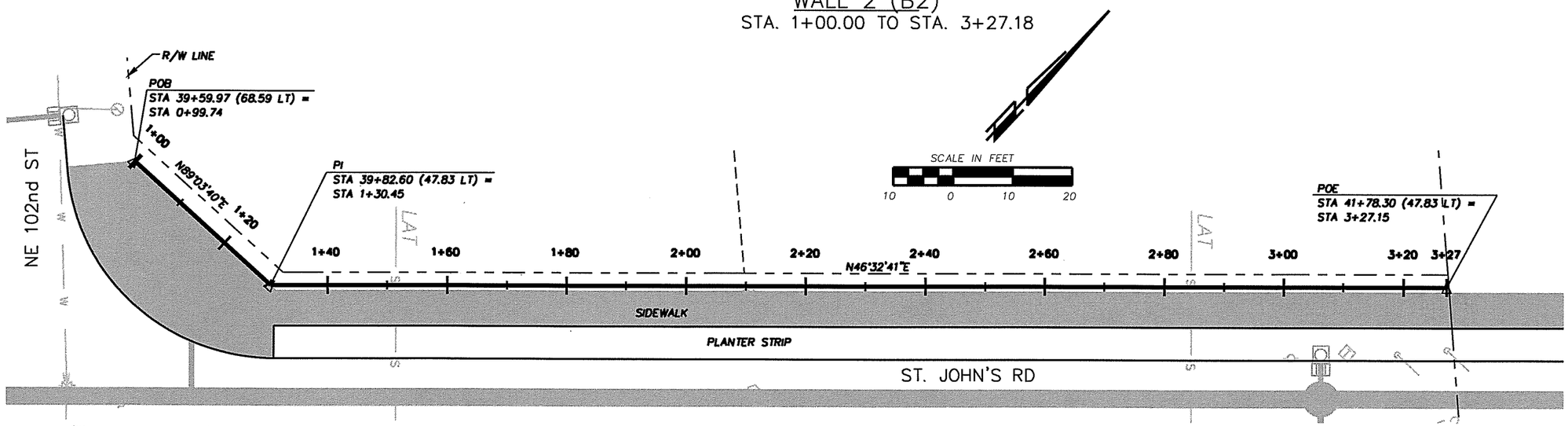
STA. 3+60.00 TO STA. 4+17.91

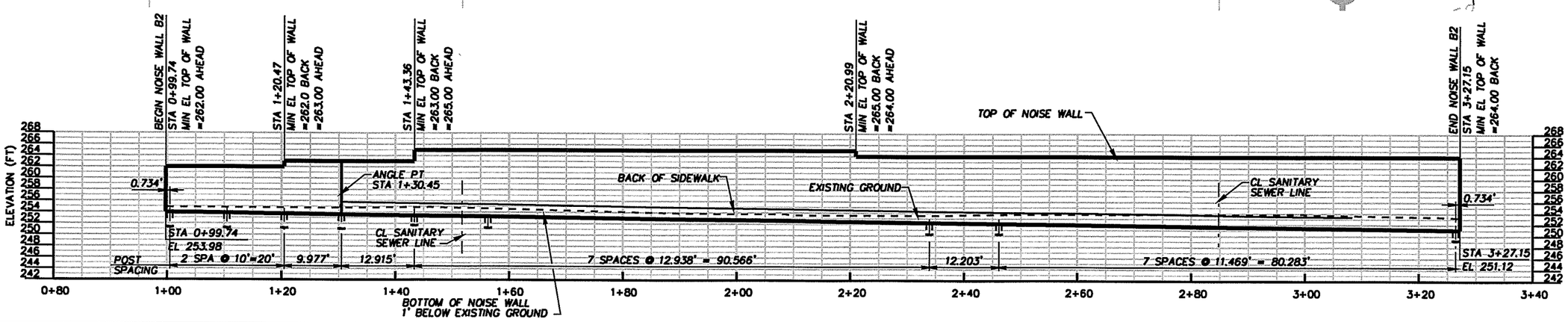




WALL 2 (B2)

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

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)
RETAINING WALLS 1 AND 2

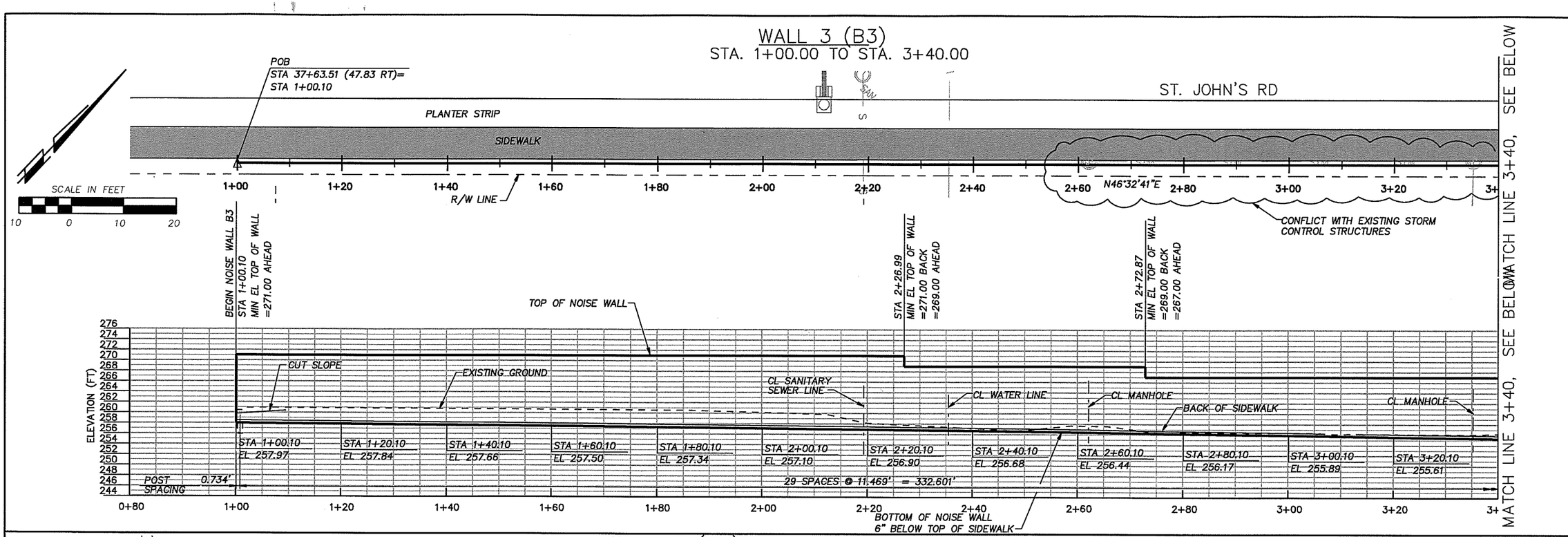
CH2MHILL

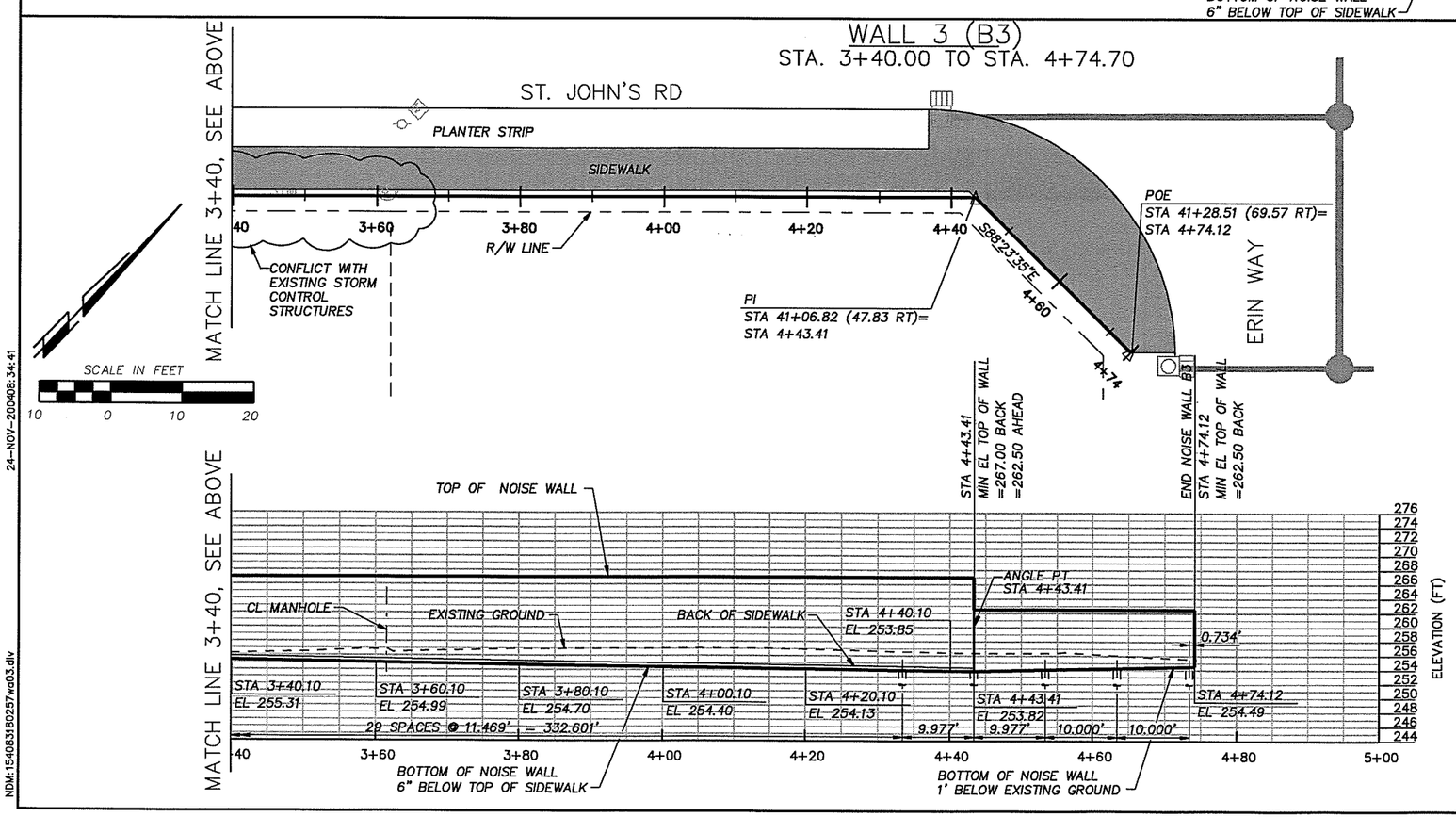
CLARK COUNTY WASHINGTON

24-NOV-2004 08:29:57

pperalta

NDM:1540831802\57\w02.dlv





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

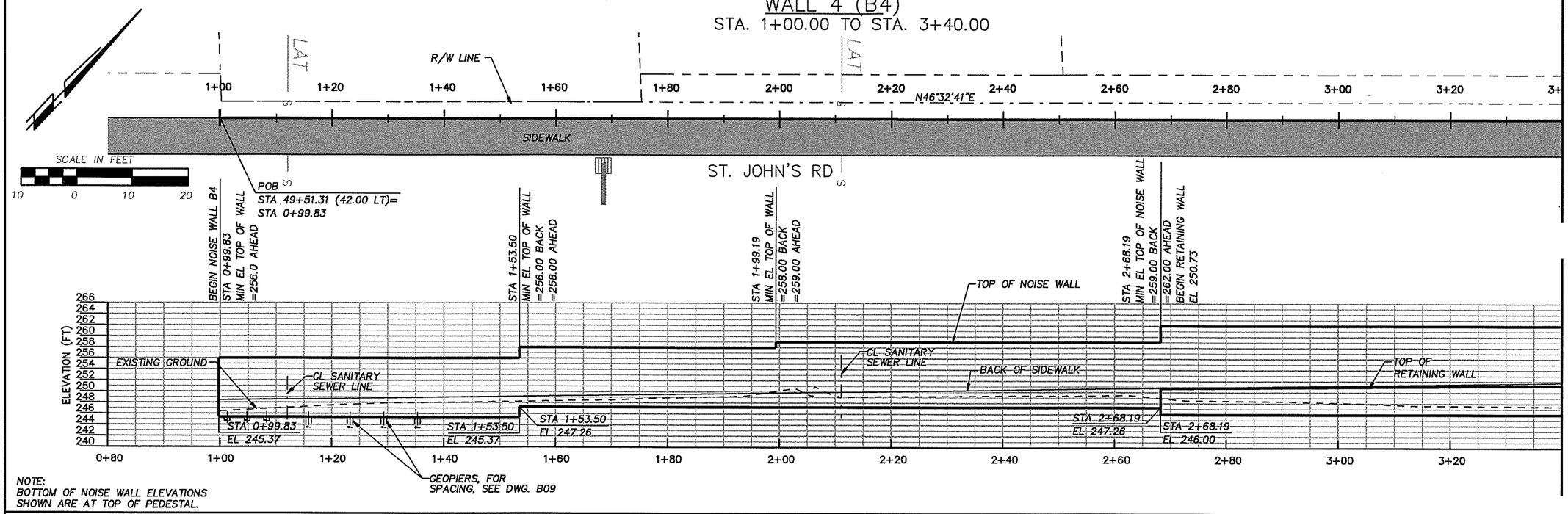
GEORGE R. NELSON WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

CLARK COUNTY WASHINGTON

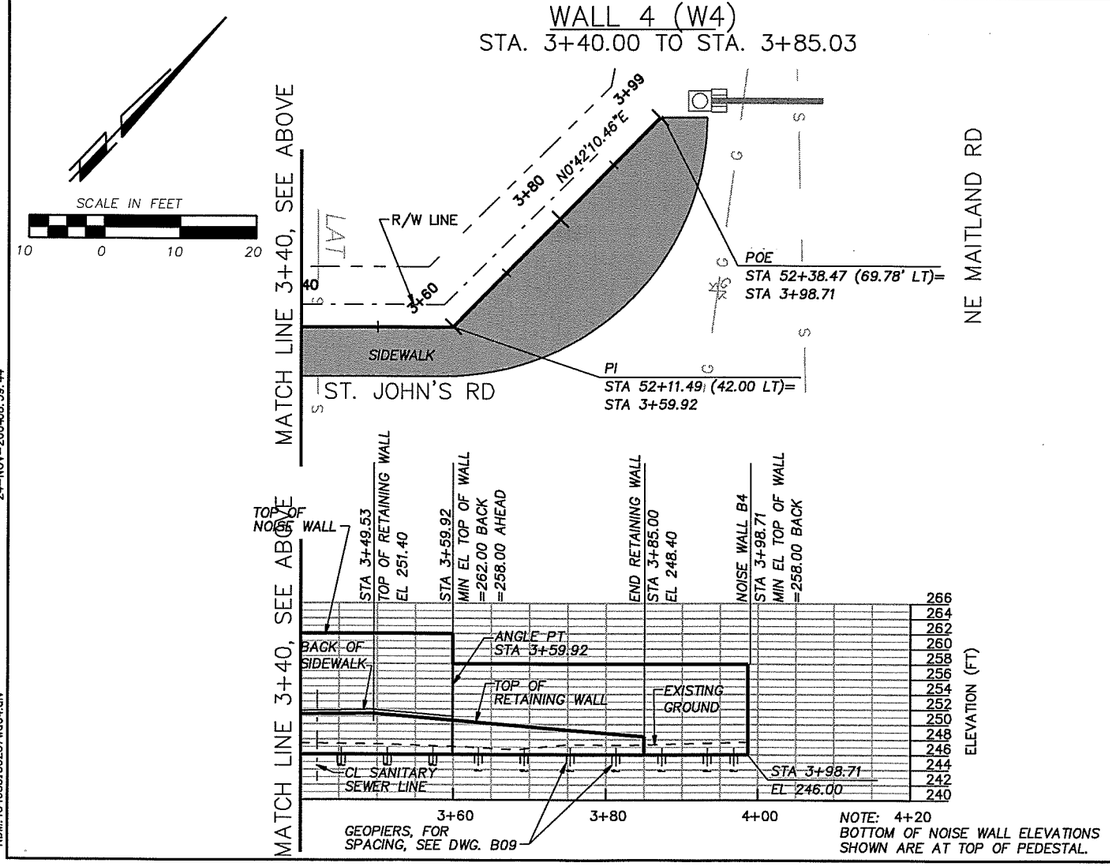
24-NOV-200408:34:41
pperalta
NDM:1540831802 57wa03.dlv

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

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)
RETAINING WALL 4

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

CH2MHILL

CLARK COUNTY WASHINGTON

24-NOV-2004 08:39:44
pperalta
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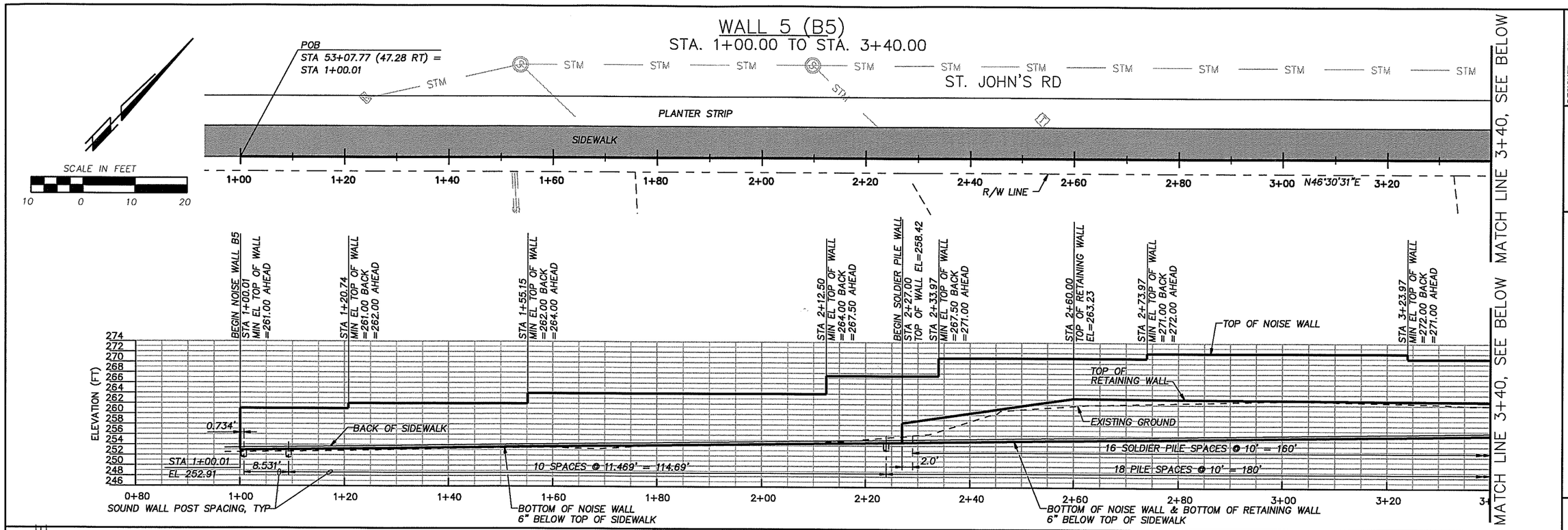
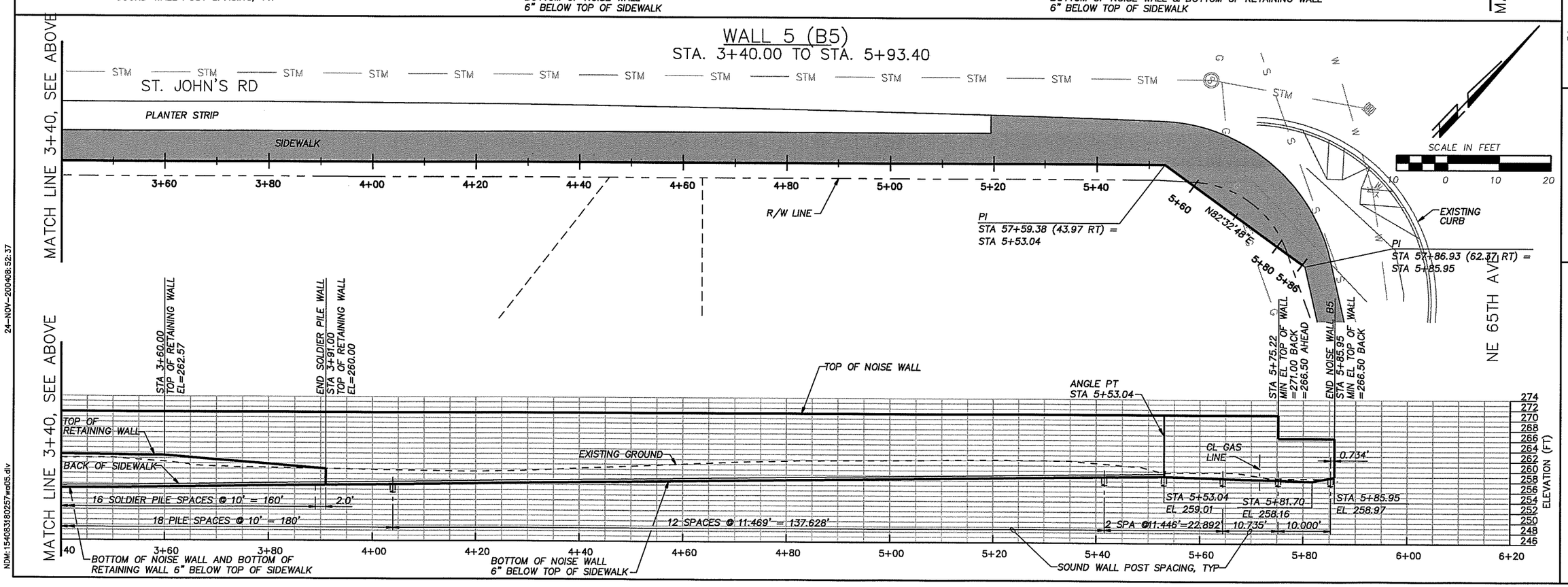




DESIGNED CEN
DRAWN DLM
CRP 301422
HOR. 1"=10'
VERT. 1"=10'
DATE 10/31/03
DWG: B05
SHEET 5 OF 26

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)
RETAINING WALL 5

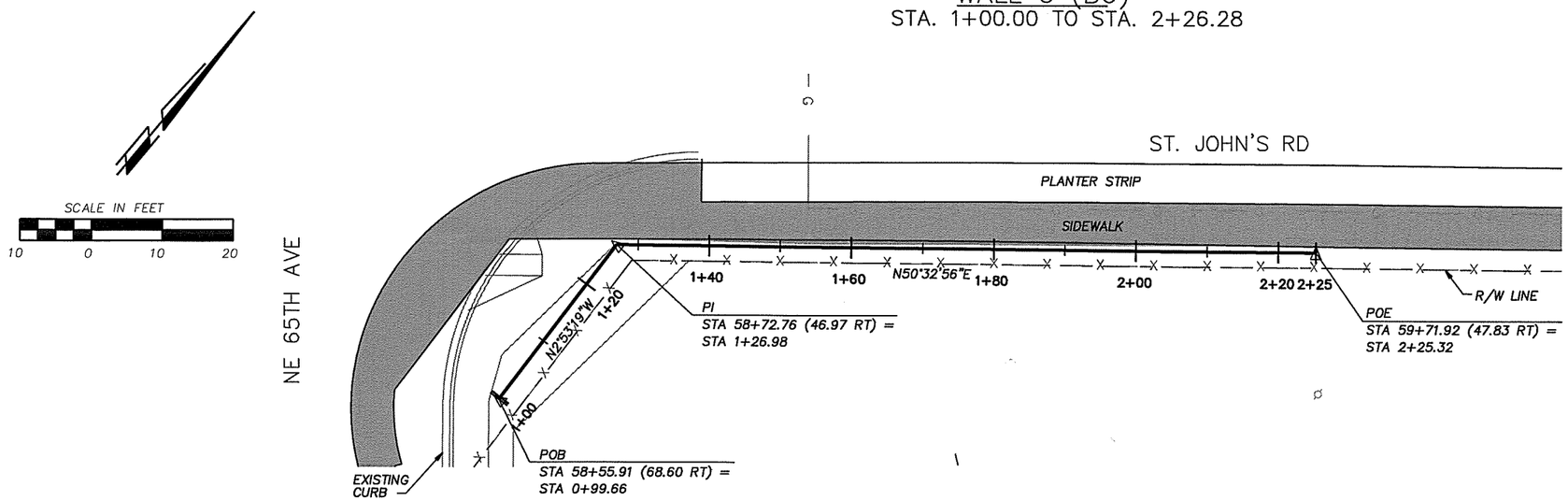
CHRIST A. NELSON
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
EXPIRES 10/29/

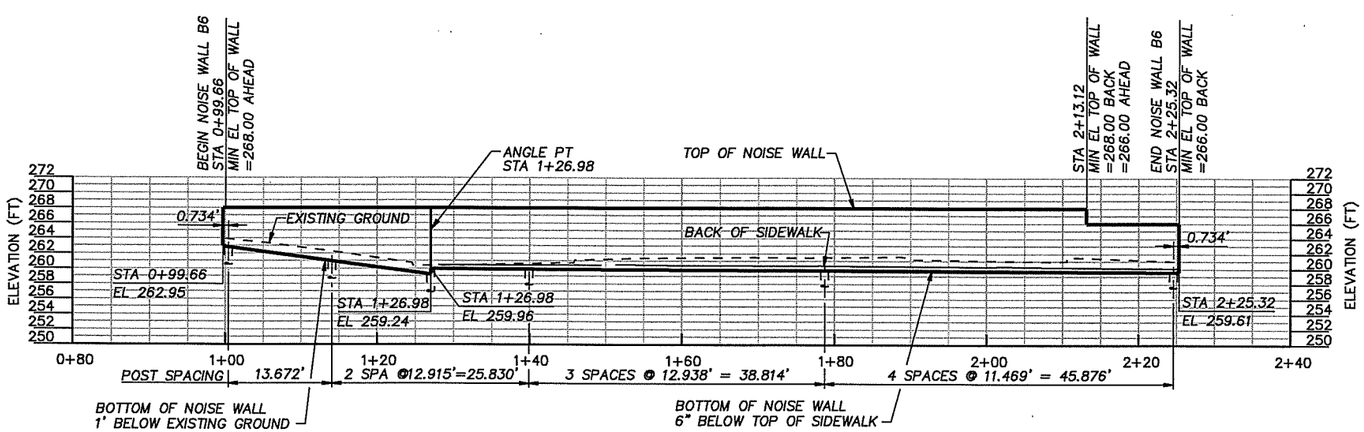
CH2MHILL

CLARK COUNTY WASHINGTON

24-NOV-2004 08:52:37
pperalta
NDM:1540B318 0257wa05.dwg

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

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)
RETAINING WALL 6

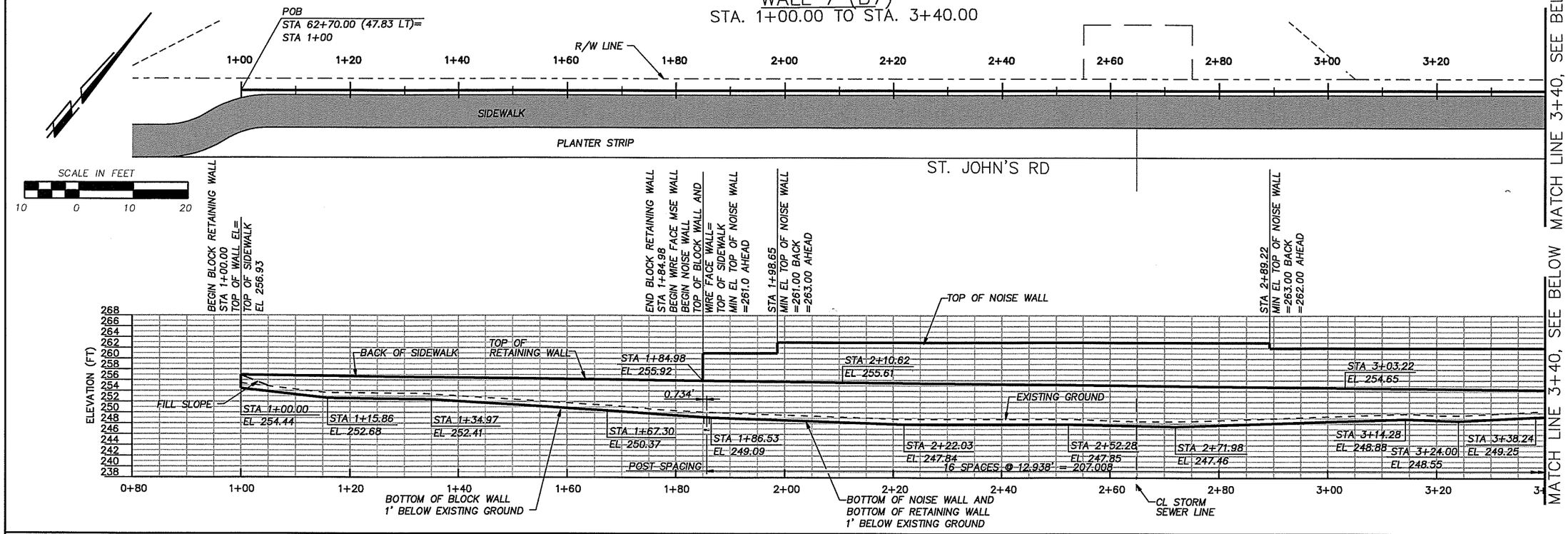
CHRISTOPHER T. NELSON
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

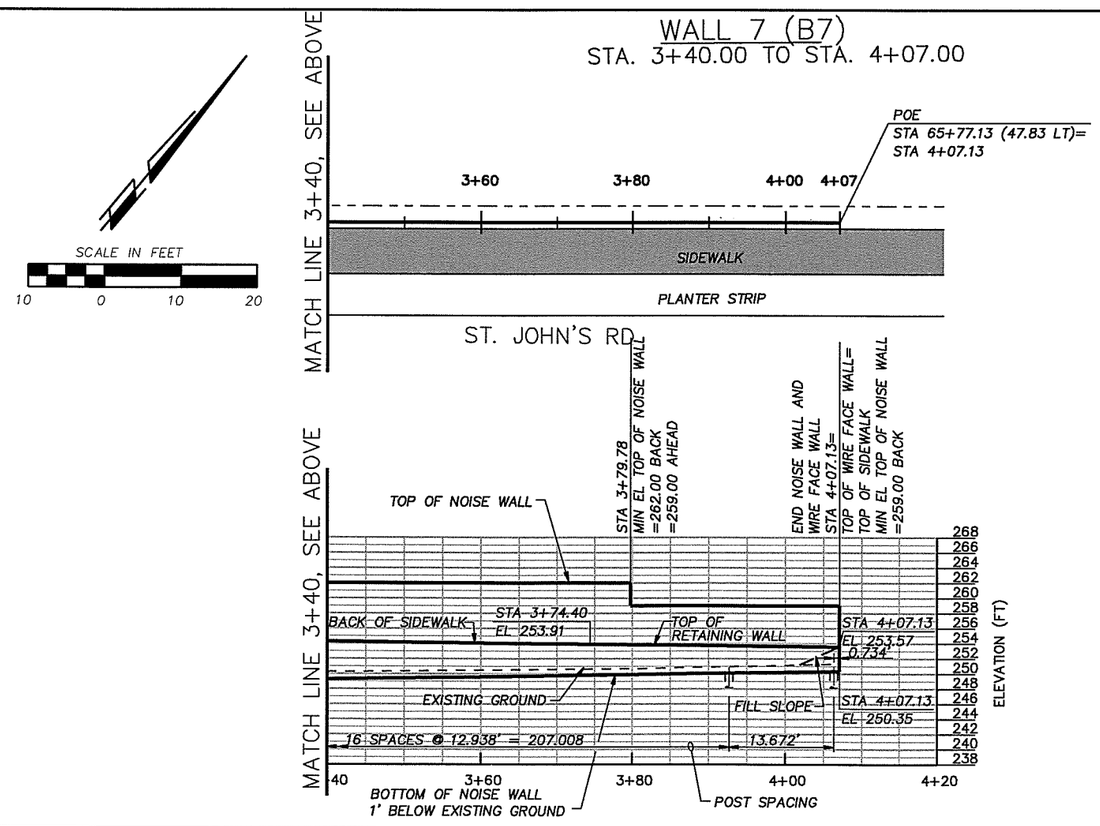
CLARK COUNTY WASHINGTON

24-NOV-2004 08:59:49
pperalta
NDM:1540831802 57wa06.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 10/31/03
DWG: B07
SHEET 7 OF 26

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

DESIGN & ENGINEERING DIVISION

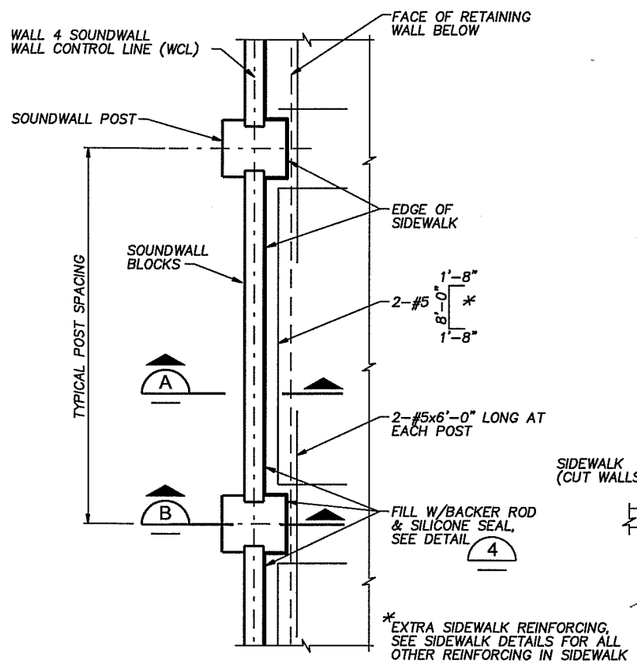
ST. JOHNS RD. (NE 50TH TO NE 72ND)
RETAINING WALL 7

CHRISTOPHER NELSON WASHINGTON
STATE OF WASHINGTON
13798
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

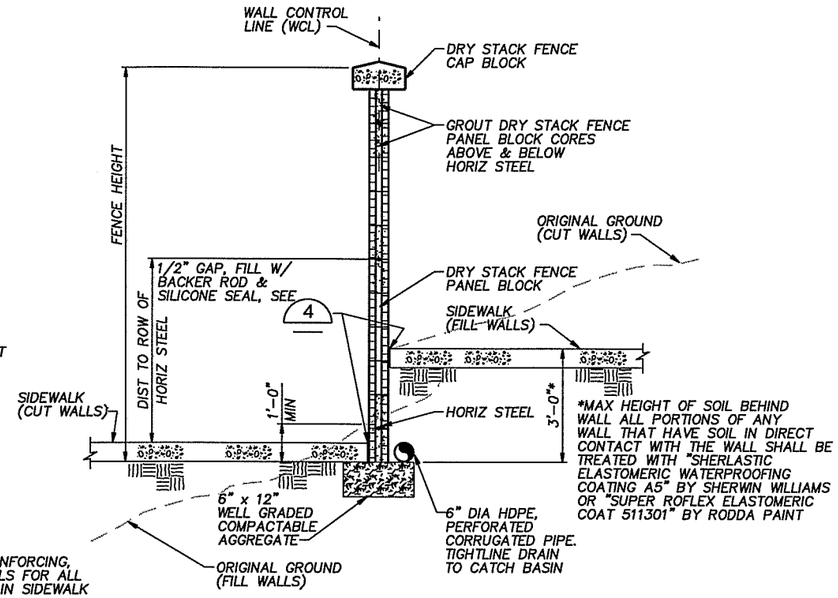
CLARK COUNTY WASHINGTON

24-NOV-2004 09:01:59
pperalta
NDM:1540B3180257wa07.dlv



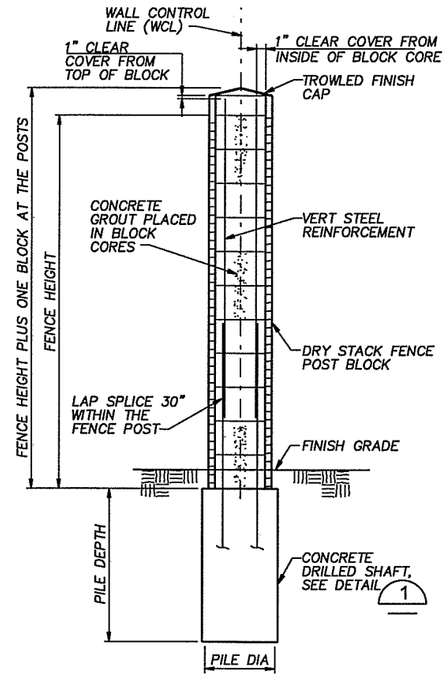
TYPICAL WALL PLAN AT SIDEWALK

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



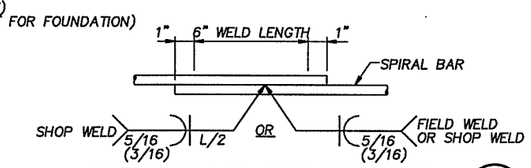
TYPICAL SECTION

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



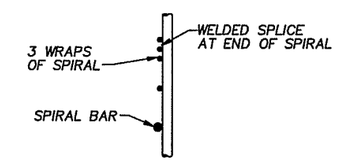
TYPICAL SECTION AT POST

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



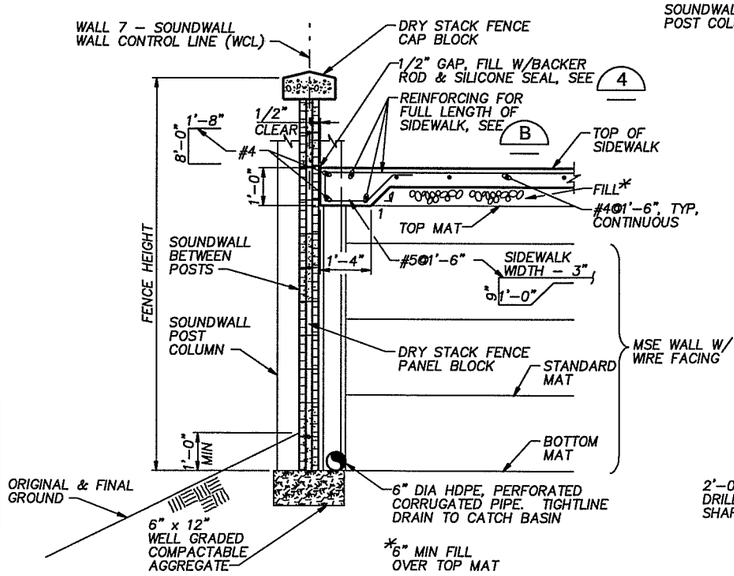
WELDED LAP SPLICE DETAIL 2

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



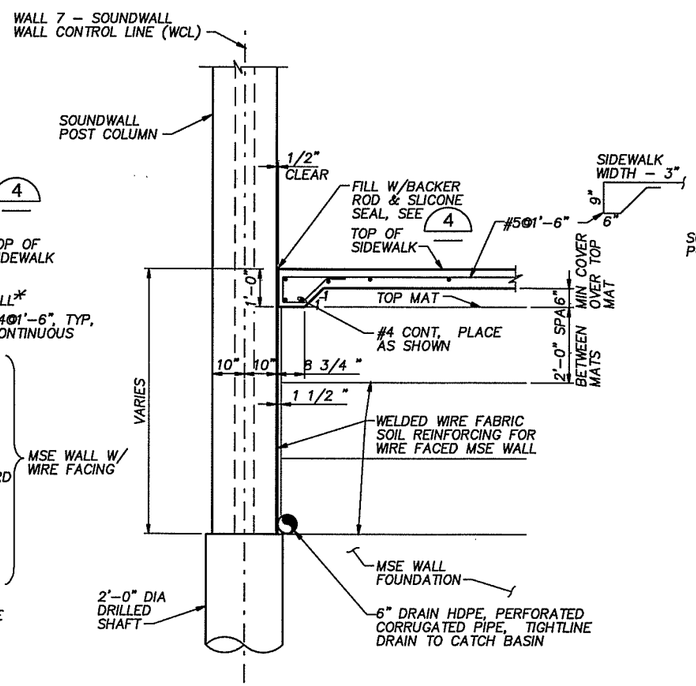
SPIRAL TERMINATION DETAIL 3

3"=1'-0"



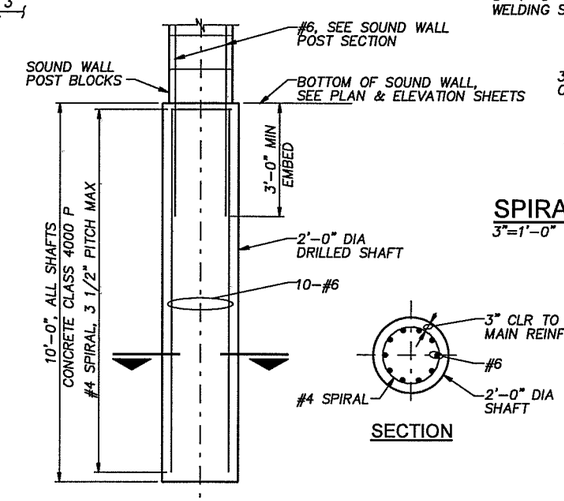
WALL 7 TYPICAL SECTION A

1/2"=1'-0"



WALL 7 SOUNDWALL POST SECTION B

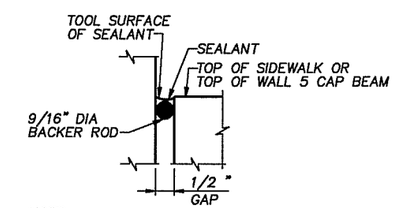
1/2"=1'-0"



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

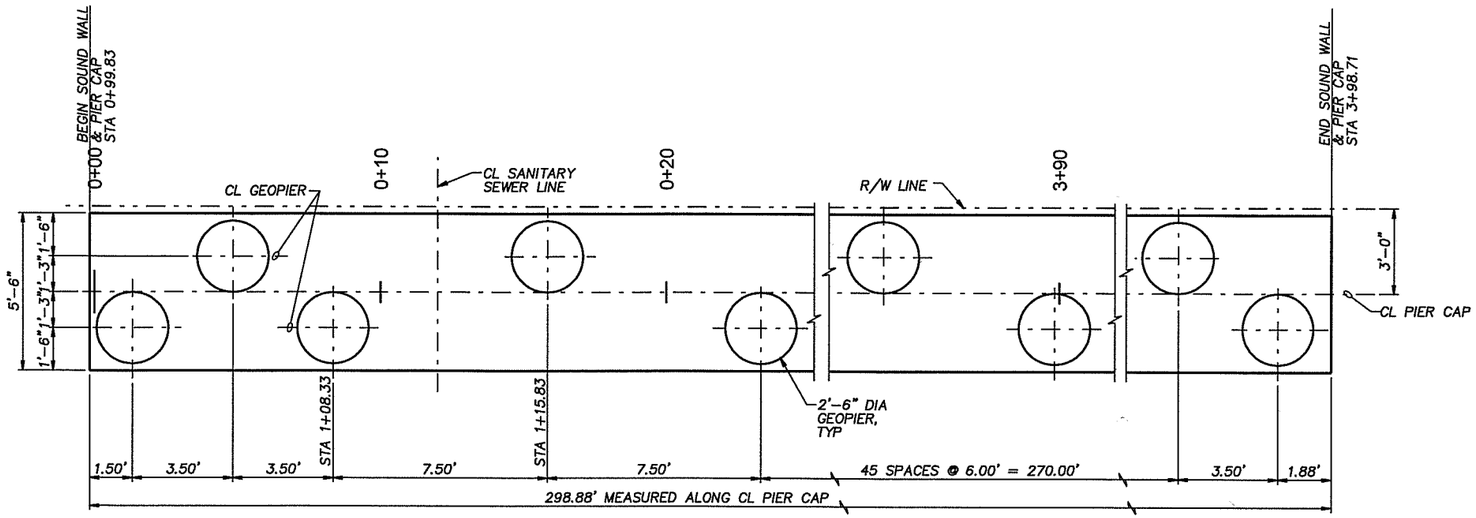
ST. JOHNS RD. (NE 50TH TO NE 72ND)
RETAINING WALL SECTIONS 1

STATE OF WASHINGTON
CHRISTOPHER J. NELSON
13788
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

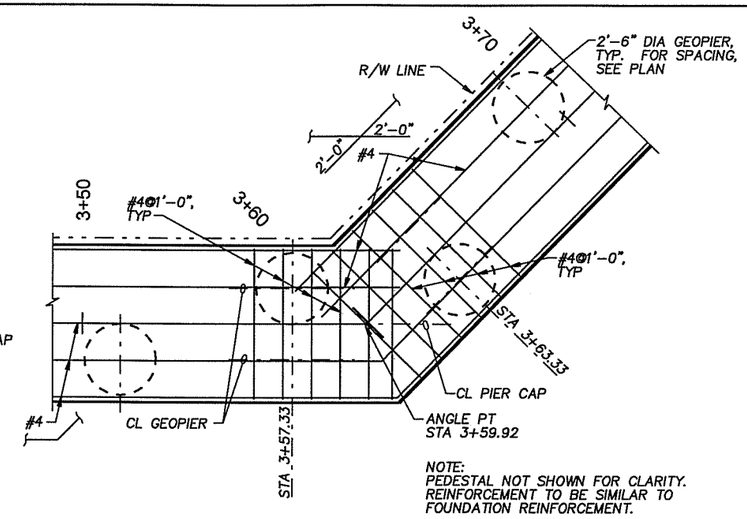
CLARK COUNTY WASHINGTON

24-NOV-200409:06:39
pperalta
NDM:1540831802S7xa01.dlv



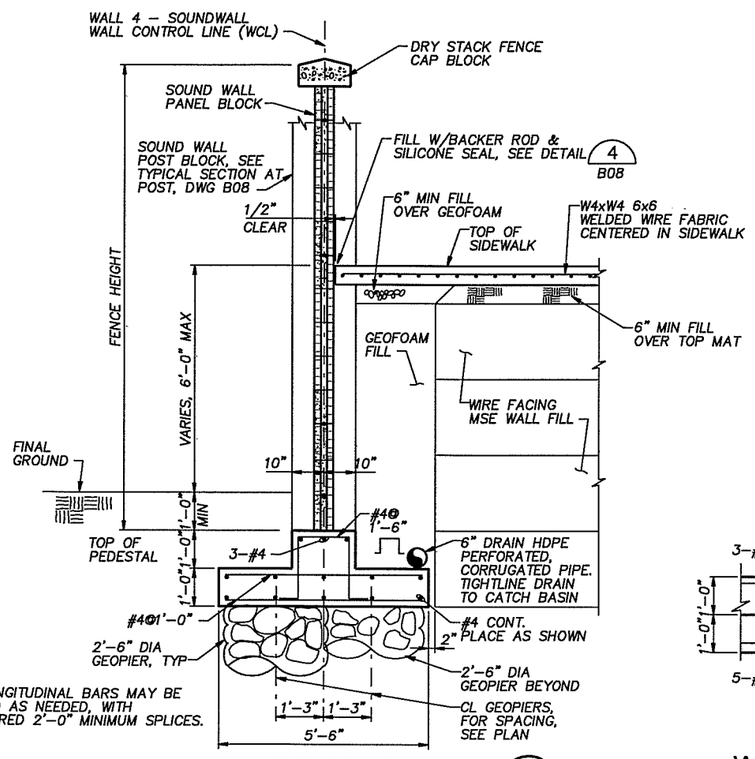
NOTE:
FOR ANGLE POINT NOT SHOWN, SEE ANGLE POINT FOOTING PLAN.

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



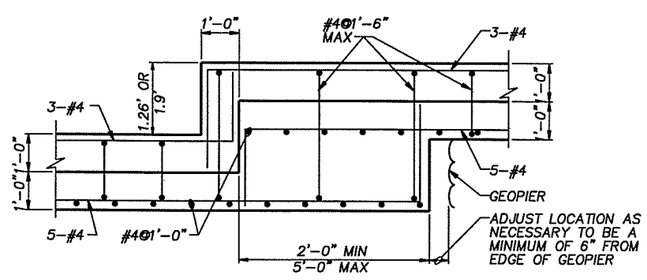
NOTE:
PEDESTAL NOT SHOWN FOR CLARITY. REINFORCEMENT TO BE SIMILAR TO FOUNDATION REINFORCEMENT.

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



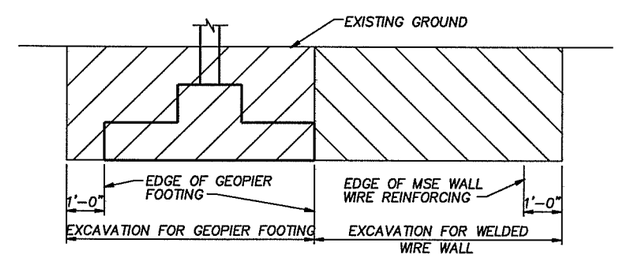
NOTE:
ALL LONGITUDINAL BARS MAY BE SPLICED AS NEEDED, WITH STAGGERED 2'-0" MINIMUM SPLICES.

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



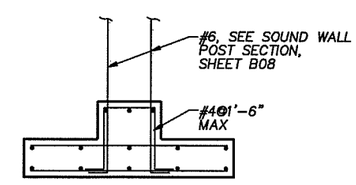
ELEVATION

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

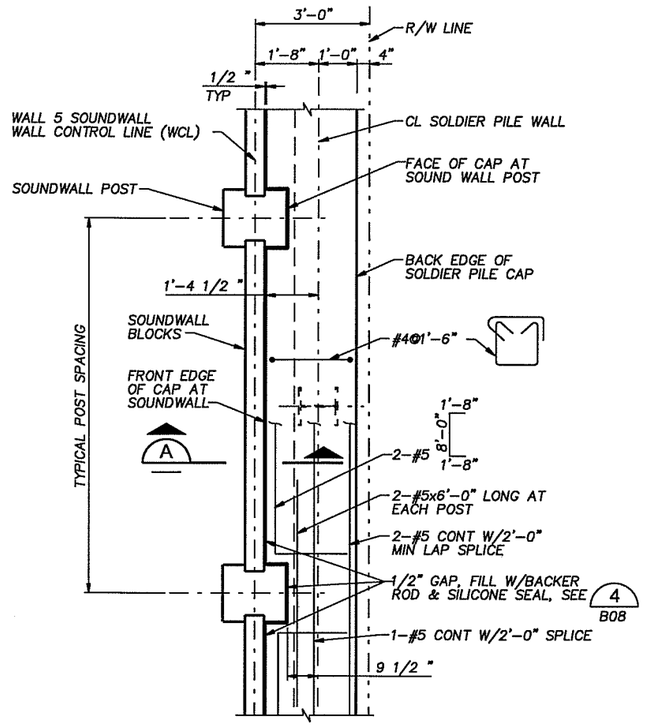
DESIGN & ENGINEERING DIVISION

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

CH2MHILL

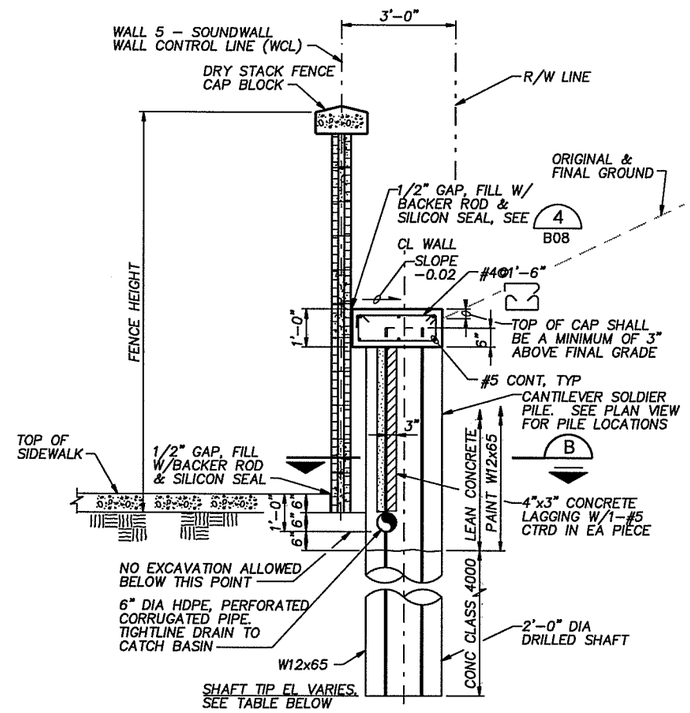
CLARK COUNTY WASHINGTON

24-NOV-200409:08:31
pperalta
NDM:1540831B0257xs02.dlv



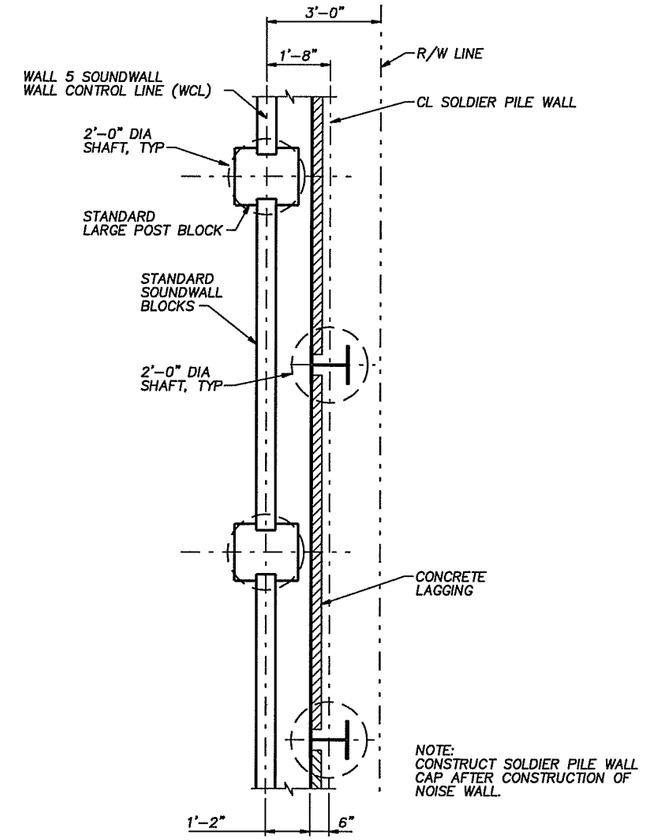
WALL 5 TOP PLAN - SOLDIER PILE CAP

1/2"=1'-0"



WALL 5 TYPICAL SECTION A

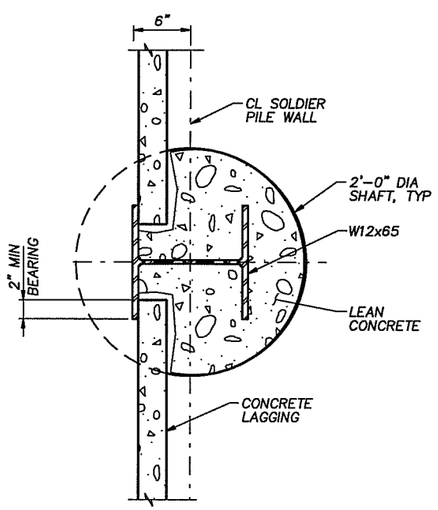
1/2"=1'-0"



NOTE:
CONSTRUCT SOLDIER PILE WALL CAP AFTER CONSTRUCTION OF NOISE WALL.

SOLDIER PILE WALL & SOUNDWALL SECTION B

1/2"=1'-0"

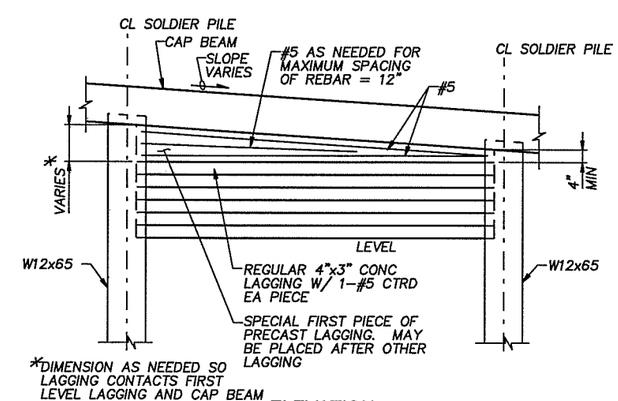


SOLDIER PILE DETAIL 1

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 UTILITIES NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

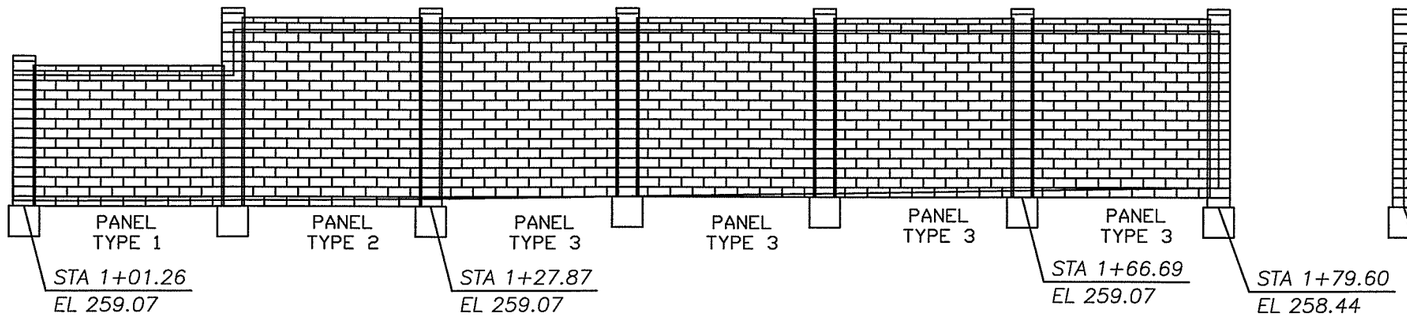
ST. JOHNS RD. (NE 50TH TO NE 72ND)
RETAINING WALL SECTIONS 3

CHRIST NELSON STATE OF WASHINGTON 13799 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

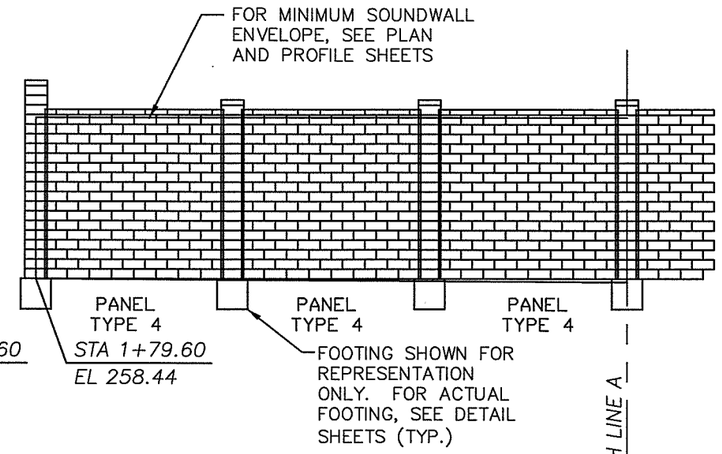
CH2MHILL

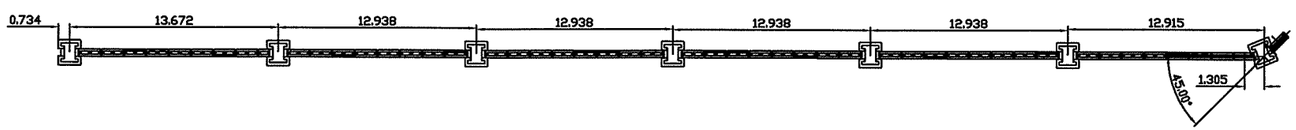
CLARK COUNTY WASHINGTON

24-NOV-200409:11:05
pperalta
NDM:1540833180257xs01.dlv

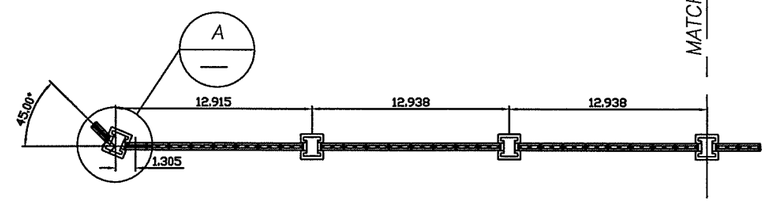


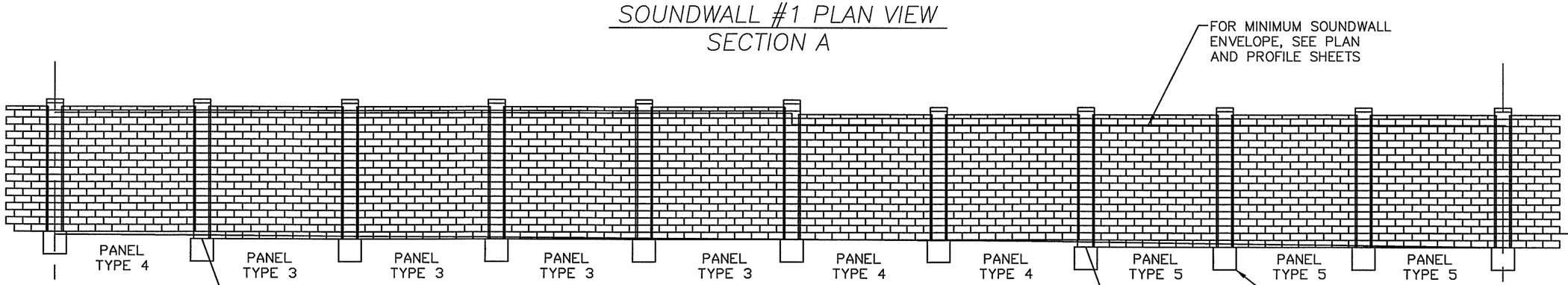
SOUNDWALL #1 ELEVATION VIEW
SECTION A



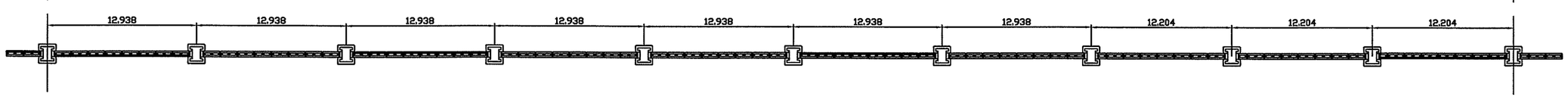


SOUNDWALL #1 PLAN VIEW
SECTION A

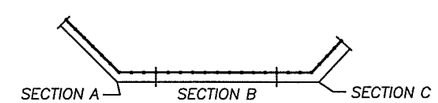




SOUNDWALL #1 ELEVATION VIEW
SECTION B



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

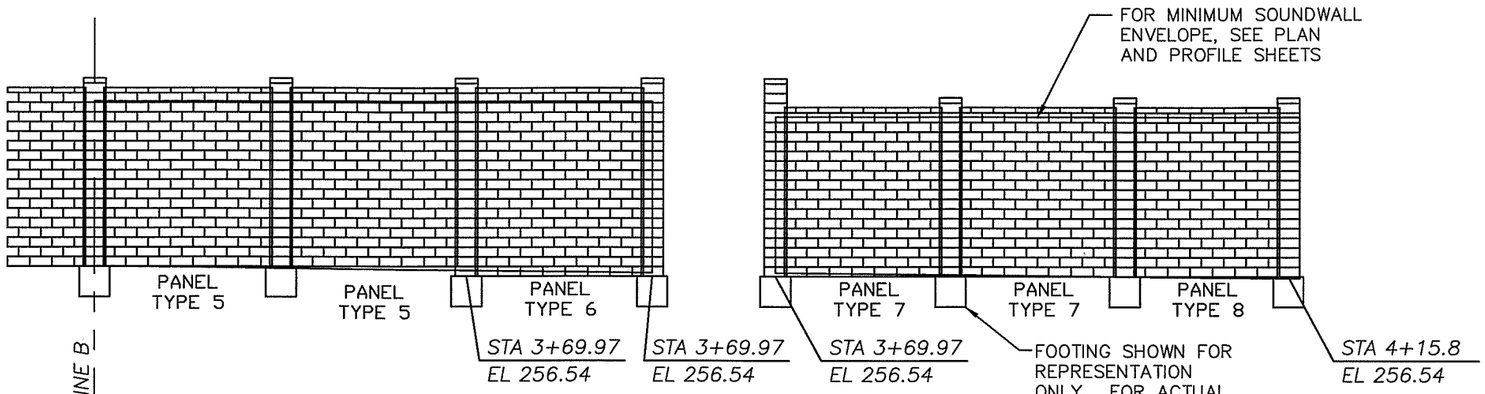
STATE OF WASHINGTON GENE S. NELSON 15794 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CH2MHILL

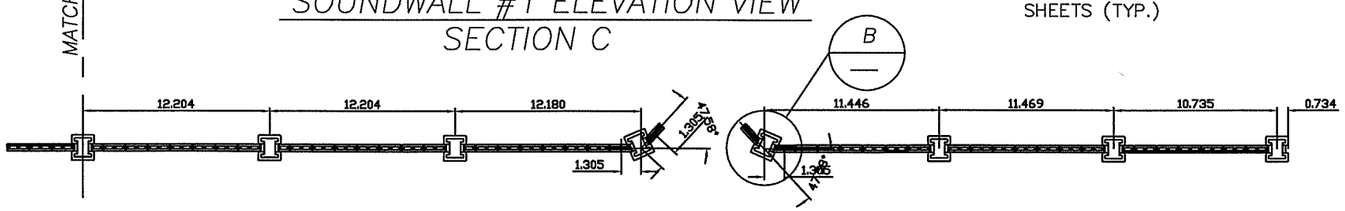
CLARK COUNTY WASHINGTON

01-Nov-2003 08:42:28

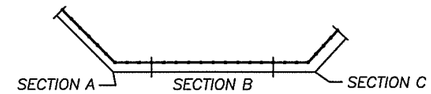
NDM:180257: ABWall 1.dwg



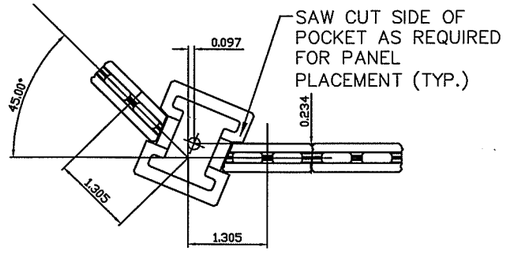
SOUNDWALL #1 ELEVATION VIEW
SECTION C



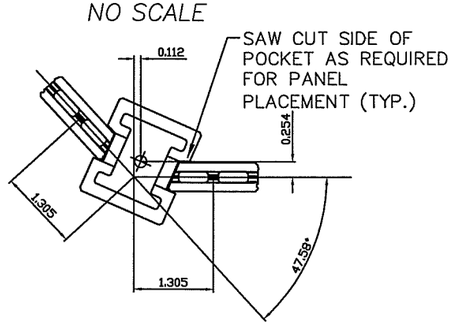
SOUNDWALL #1 PLAN VIEW
SECTION C



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

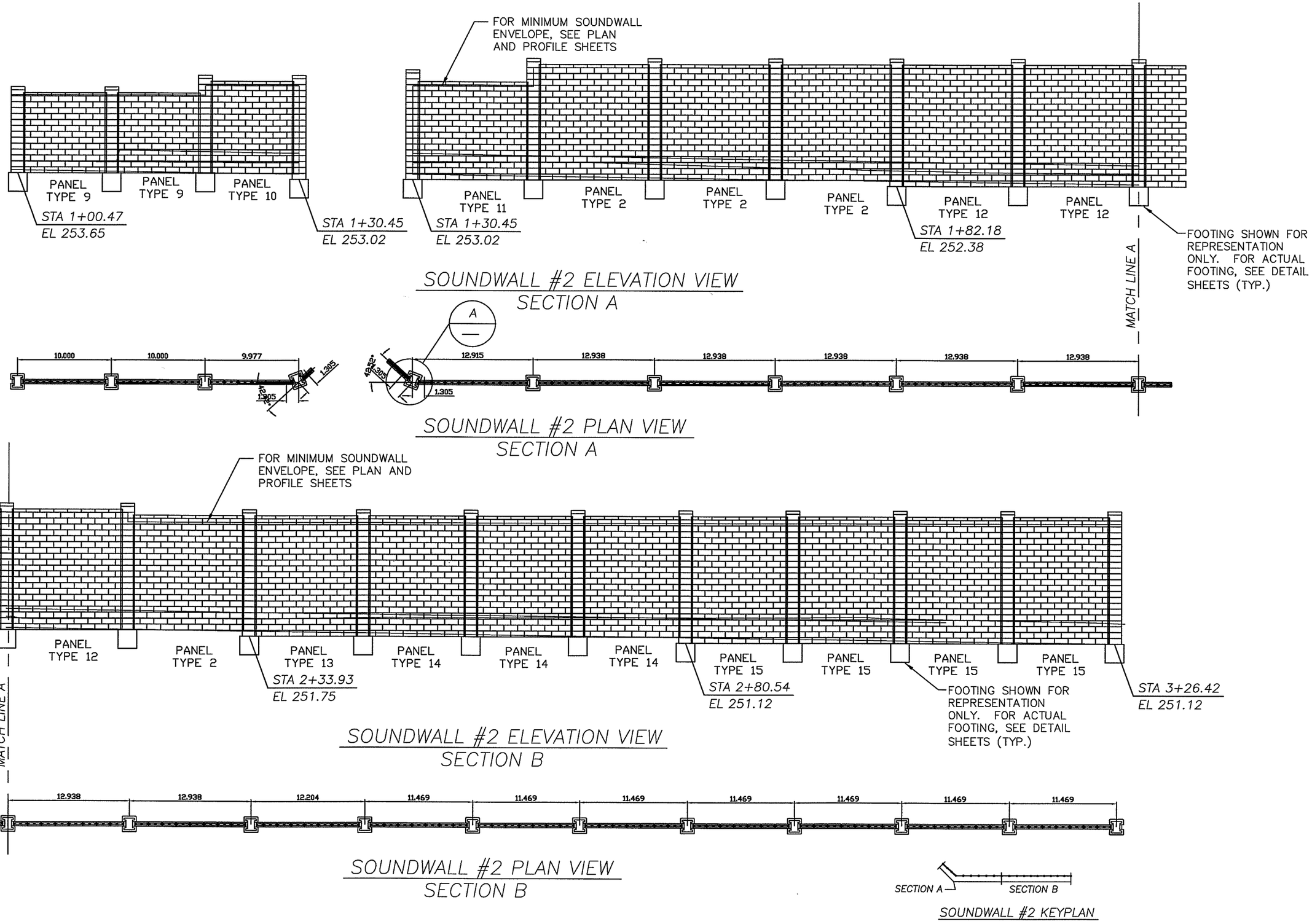
SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #1

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

CH2MHILL

CLARK COUNTY WASHINGTON

01-Nov-2003 08:42:28
NDM:180257: ABWall 1.dwg



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

CENTRAL WELSON WASHINGTON STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CH2MHILL

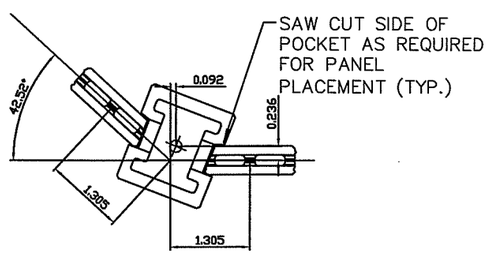
CLARK COUNTY WASHINGTON

01-Nov-200308:42:28

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

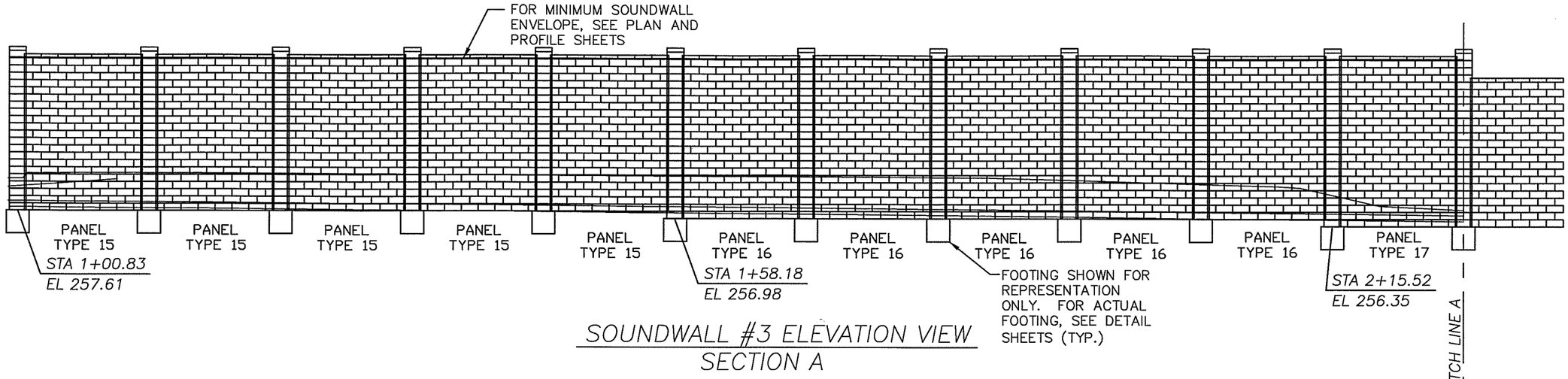
SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #2

CERTIFIED ENGINEER NELSON STATE OF WASHINGTON 13784 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/—

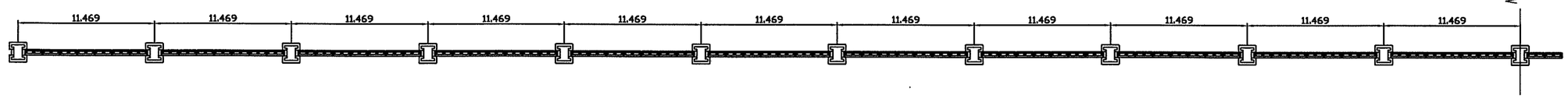
CH2MHILL

CLARK COUNTY WASHINGTON

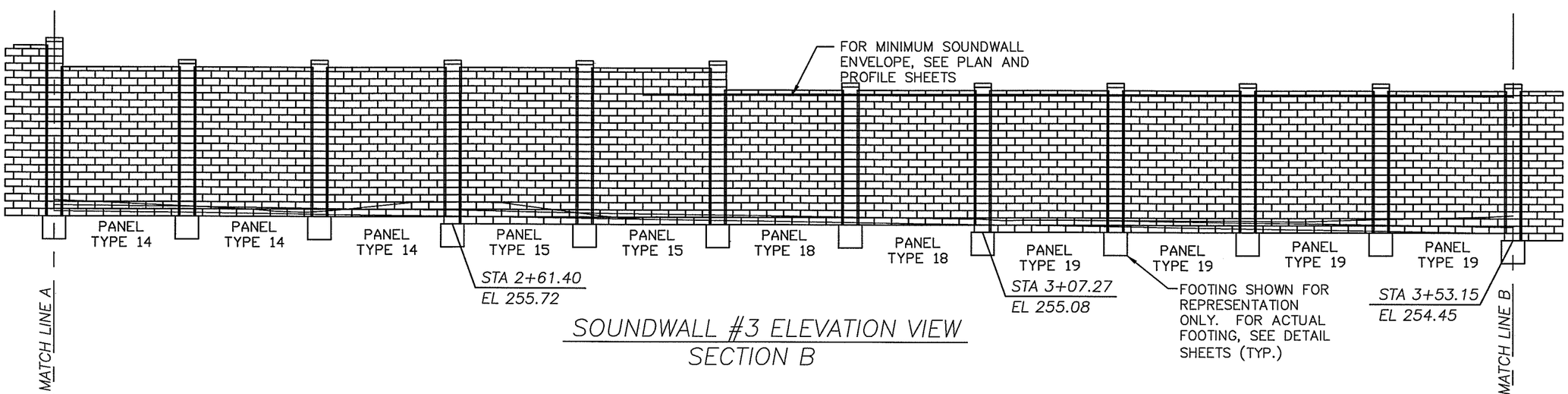
01-Nov-2003 08:42:28
NDM:180257: ASWall 2.dwg



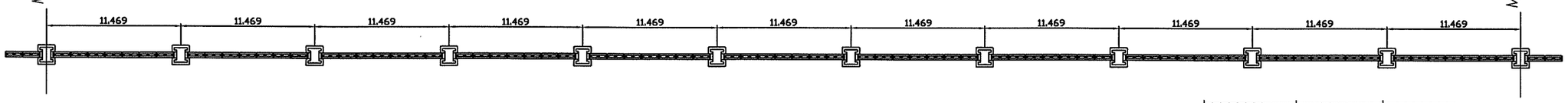
SOUNDWALL #3 ELEVATION VIEW
SECTION A



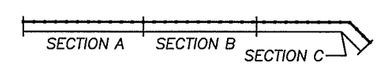
SOUNDWALL #3 PLAN VIEW
SECTION A



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: B15
SHEET 15 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 #3

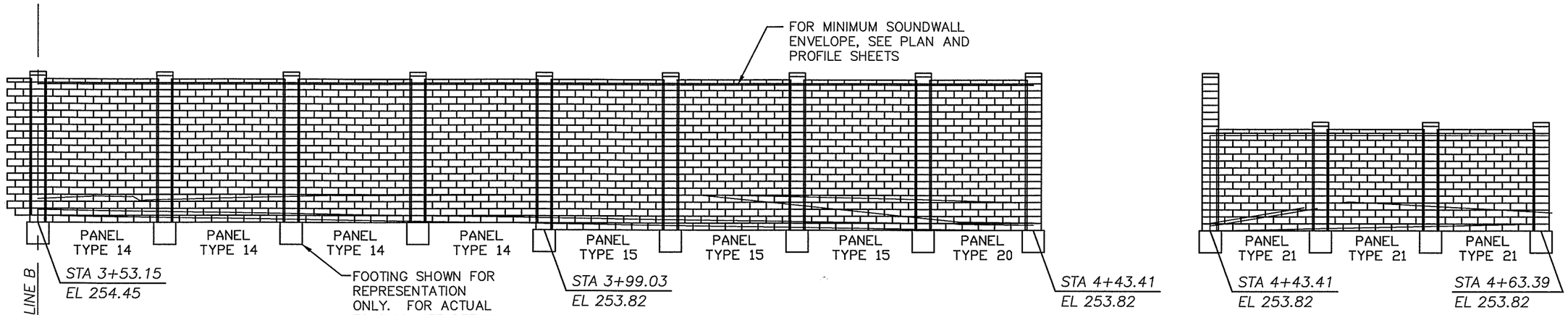
CHARLES E. NELSON STATE OF WASHINGTON 13784 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/30/__

CH2MHILL

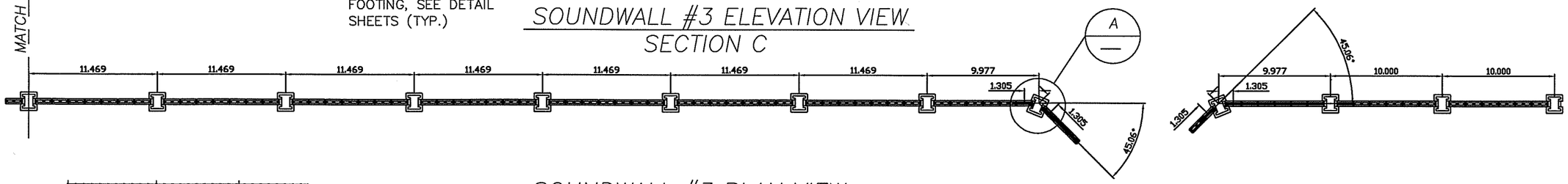
CLARK COUNTY WASHINGTON

01-NOV-2003 08:42:28

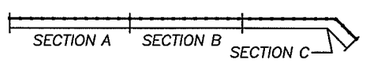
NDM:180257: ASWALL 3.DWG



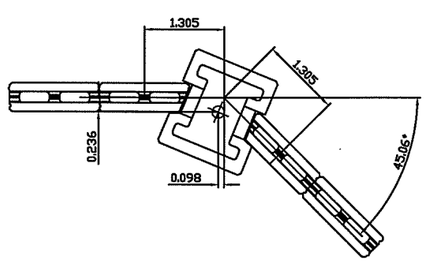
SOUNDWALL #3 ELEVATION VIEW
SECTION C



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

DESIGNED Engineer
DRAWN Drawn
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-22-03
DWG: B16
SHEET 16 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 #3

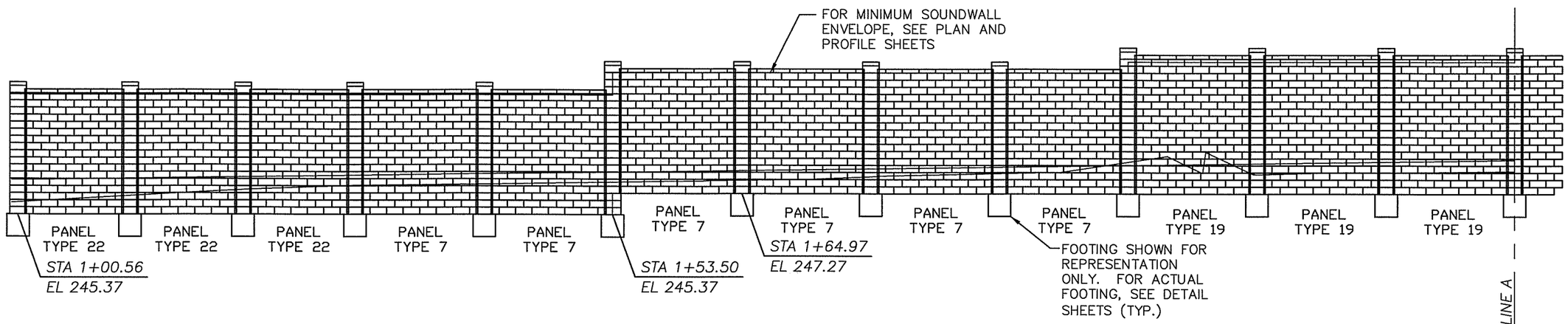
STATE OF WASHINGTON
CHRIST NIELSON
STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CH2MHILL

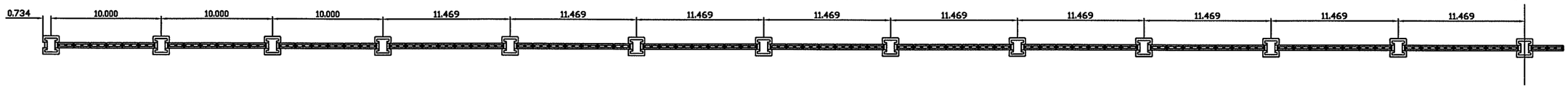
CLARK COUNTY WASHINGTON

01-nov-2002

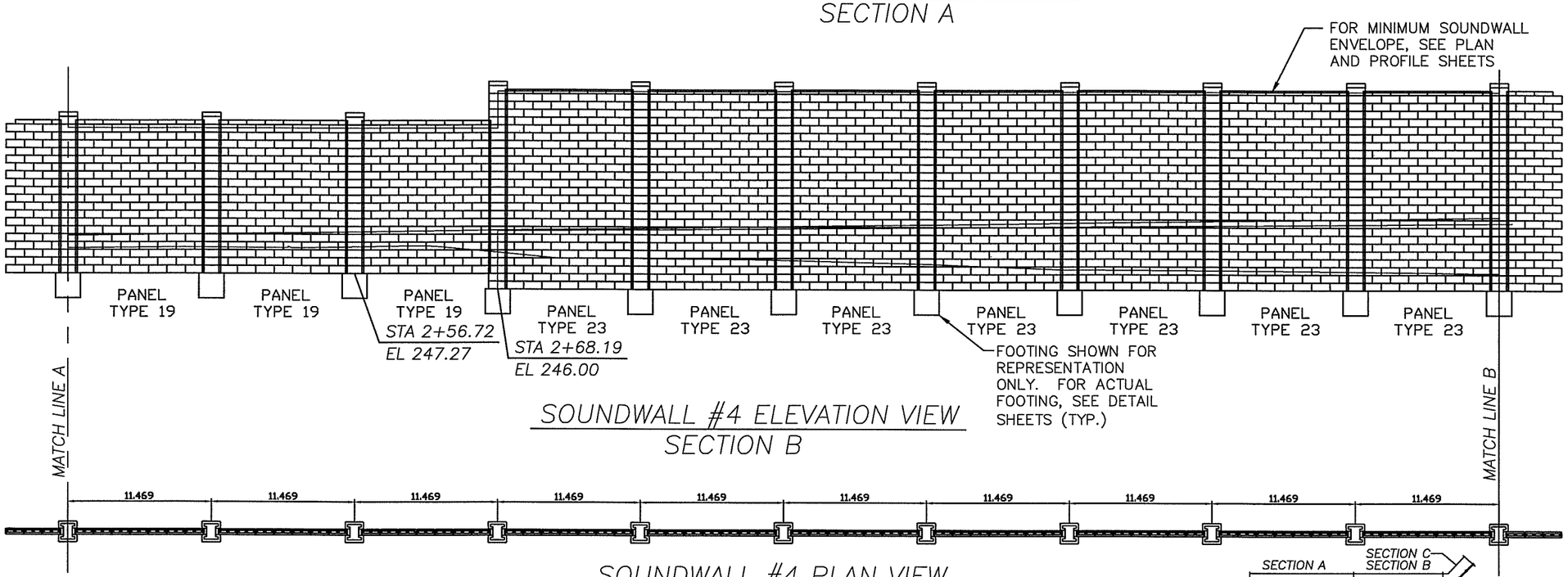
NDM:180257: ABWall 3.dwg



SOUNDWALL #4 ELEVATION VIEW
SECTION A

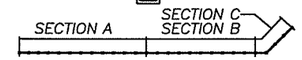


SOUNDWALL #4 PLAN VIEW
SECTION A



SOUNDWALL #4 ELEVATION VIEW
SECTION B

SOUNDWALL #4 PLAN VIEW
SECTION B



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

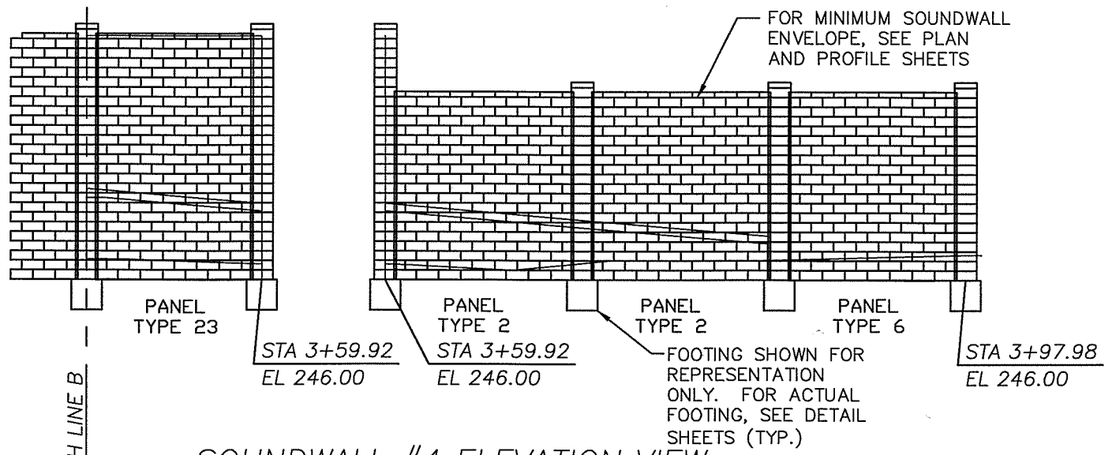
CERTIFIED PROFESSIONAL ENGINEER
NELSON
STATE OF WASHINGTON
EXPIRES 10/29/__

CH2MHILL

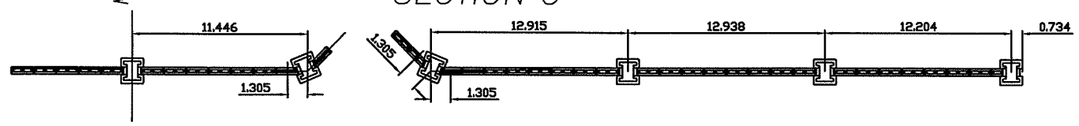
CLARK COUNTY WASHINGTON

01-Nov-2002 08:42:28

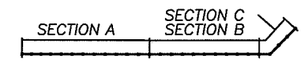
NDM:180257: ABWall 4a.dwg



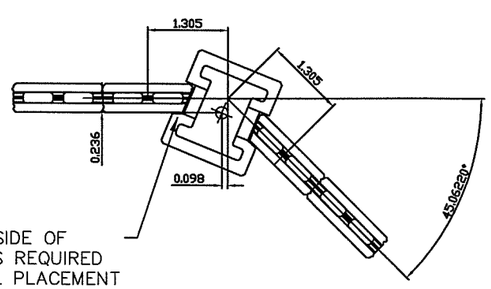
SOUNDWALL #4 ELEVATION VIEW
SECTION C



SOUNDWALL #4 PLAN VIEW
SECTION C



SOUNDWALL #4 KEYPLAN



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

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 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

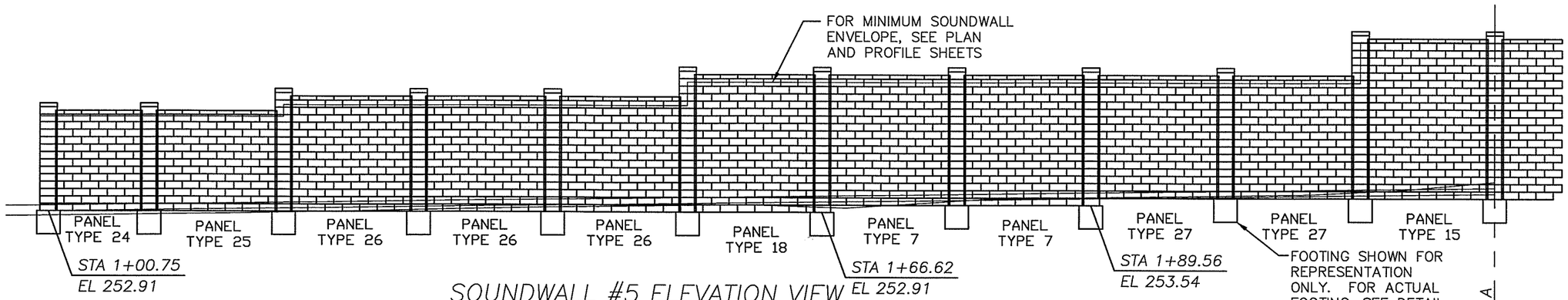
SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #4

STATE OF WASHINGTON
CHRISTOPHER S. NELSON
15798
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/—

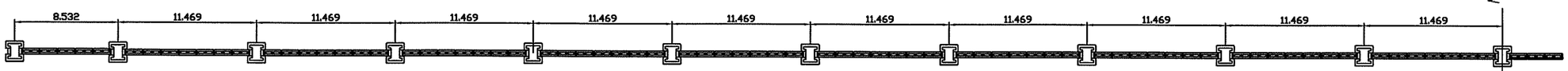
CH2MHILL

CLARK COUNTY WASHINGTON

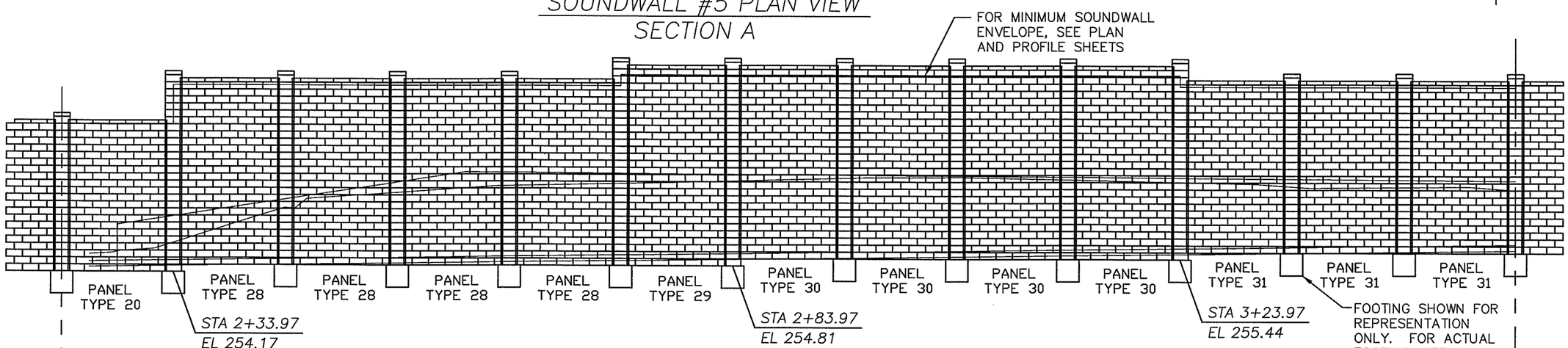
01-nov-2003 08:42:28
NDM:180257:ABWall 4.dwg



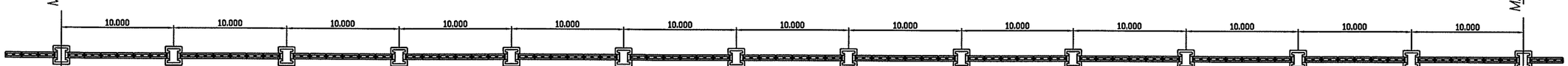
SOUNDWALL #5 ELEVATION VIEW
SECTION A



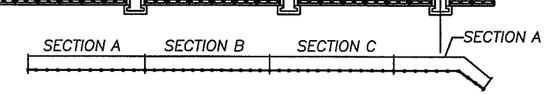
SOUNDWALL #5 PLAN VIEW
SECTION A



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

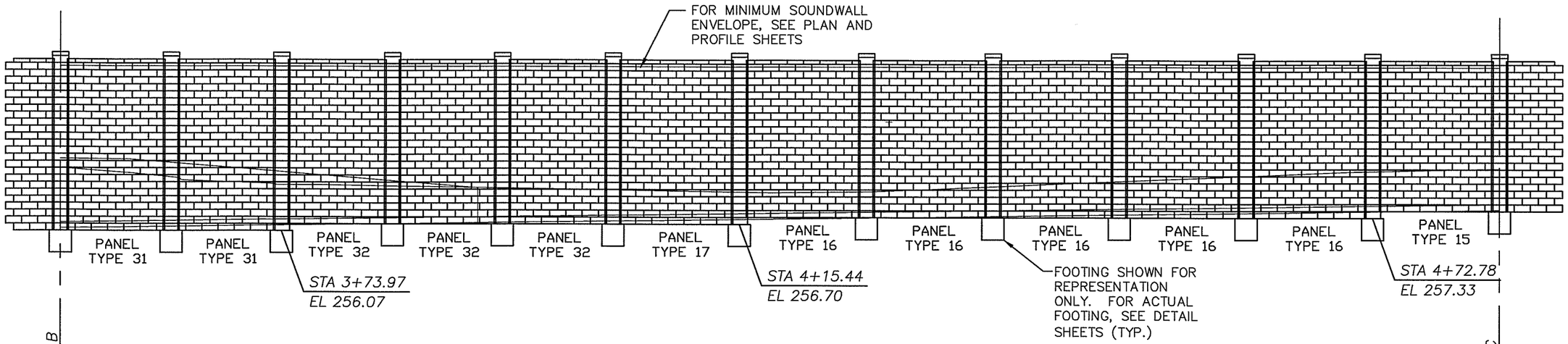
STATE OF WASHINGTON
CHRIST NELSON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CH2MHILL

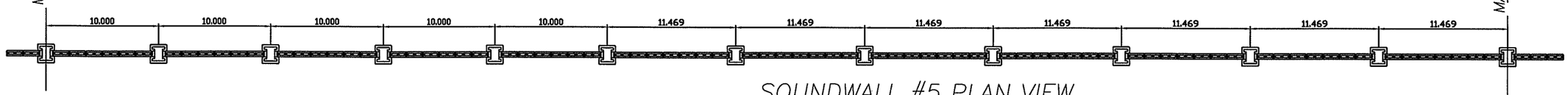
CLARK COUNTY WASHINGTON

01-Nov-2003 08:42:28

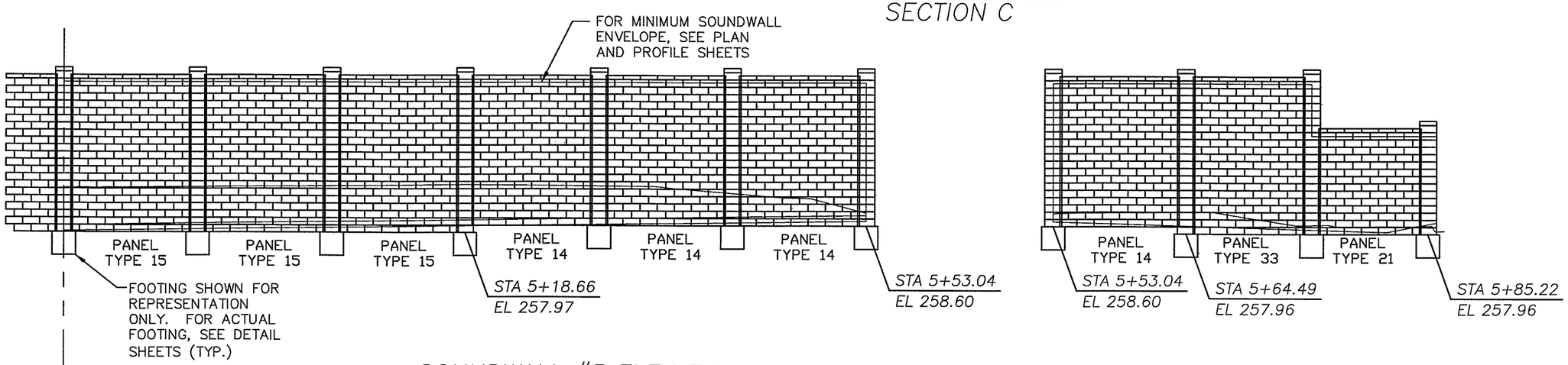
NDM:1B0257: ABWall 5.dwg



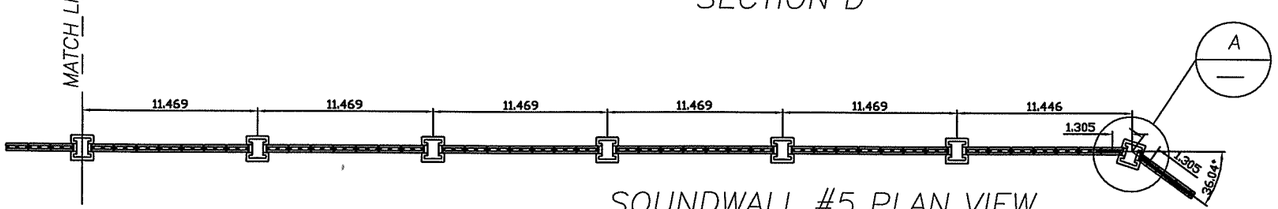
SOUNDWALL #5 ELEVATION VIEW
SECTION C



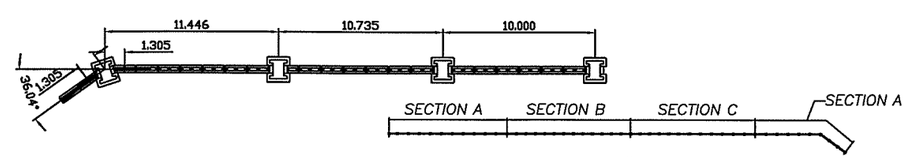
SOUNDWALL #5 PLAN VIEW
SECTION C



SOUNDWALL #5 ELEVATION VIEW
SECTION D



SOUNDWALL #5 PLAN VIEW
SECTION D



SOUNDWALL #5 KEYPLAN

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

CHRISTOPHER S. NELSON STATE OF WASHINGTON 43237 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

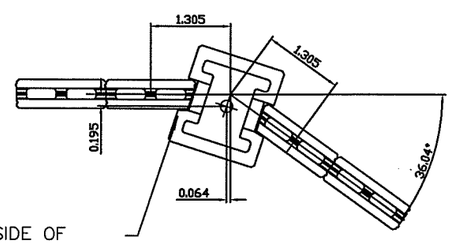
CLARK COUNTY WASHINGTON

01-Nov-200308:42:28

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
CRP 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

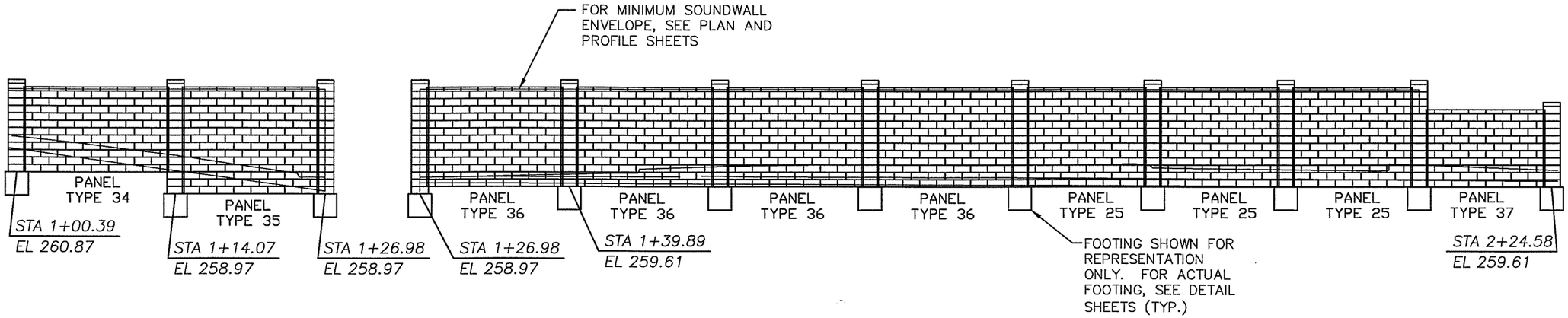
STATE OF WASHINGTON
CRAIG STEVENSON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

CH2MHILL

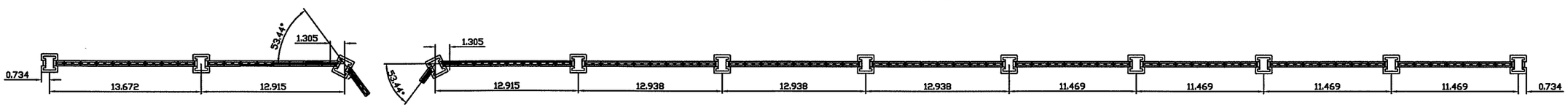
CLARK COUNTY WASHINGTON

01-Nov-2003 08:42:26

NDM:180257: ABWall 5.dwg

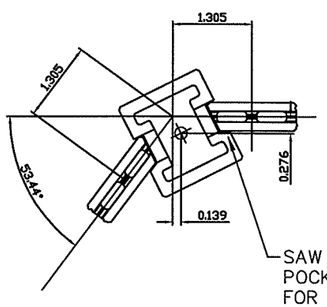


SOUNDWALL #6 ELEVATION VIEW



SOUNDWALL #6 PLAN VIEW

SOUNDWALL #6 KEYPLAN



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

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

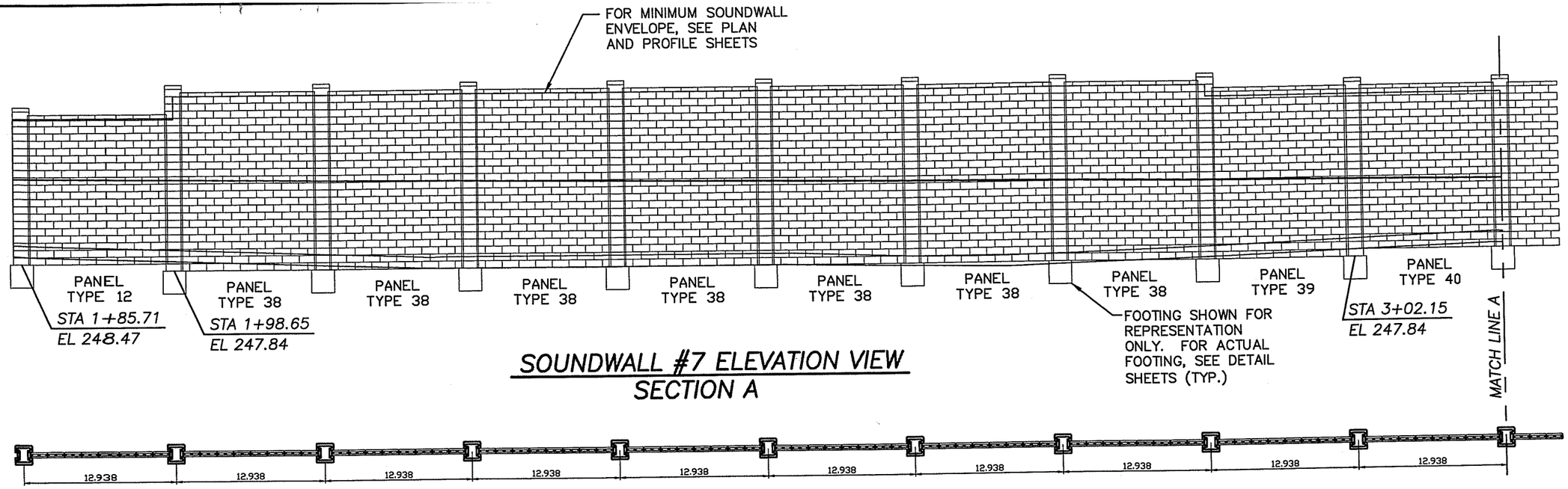
STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER 13798 CHRISTOPHER J. NELSON
EXPIRES 10/29/—

CH2MHILL

CLARK COUNTY WASHINGTON

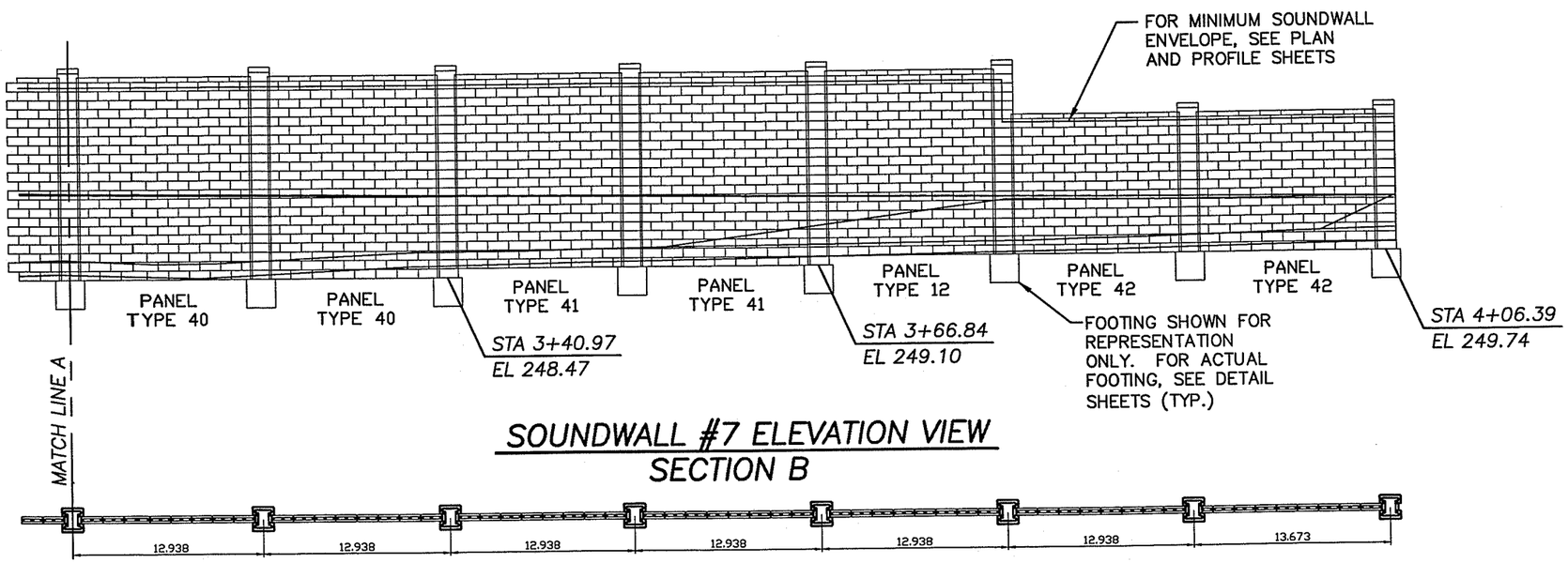
01-Nov-2003 08:42:28

NDM:1802257: ABWall 6.dwg



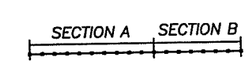
SOUNDWALL #7 ELEVATION VIEW
SECTION A

SOUNDWALL #7 PLAN VIEW
SECTION A



SOUNDWALL #7 ELEVATION VIEW
SECTION B

SOUNDWALL #7 PLAN VIEW
SECTION B



SOUNDWALL #7 KEYPLAN

DESIGNED Engineer
DRAWN Drawn
CRP 301422
HOR. 1"=10'
VERT. 1"=10'
DATE 10-22-
DWG: B23
SHEET 23 OF

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 #7

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

CH2MHILL

CLARK COUNTY WASHINGTON

01-Feb-2002 08:42:26

NDM:180257: ABWall 7.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 12	8 PANEL BLOCK	20 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 19
TYPE 38	8 PANEL BLOCK	24 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 7, 13, 18, 23
TYPE 39	8 PANEL BLOCK	23 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15, 22
TYPE 40	8 PANEL BLOCK	22 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 15, 21
TYPE 41	8 PANEL BLOCK	21 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14, 20
TYPE 42	8 PANEL BLOCK	15 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14
TYPE 43	8.5 PANEL BLOCK	15 PANEL BLOCK	4 - #6	1 - #4 EACH	1, 8, 14

DESIGNED Engine
DRAWN Drawn
CRP 301422
HOR. 1"=10
VERT. 1"=10
DATE 10-22-
DWG: B24
SHEET 24 OF

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

DESIGN & ENGINEERING DIVISION

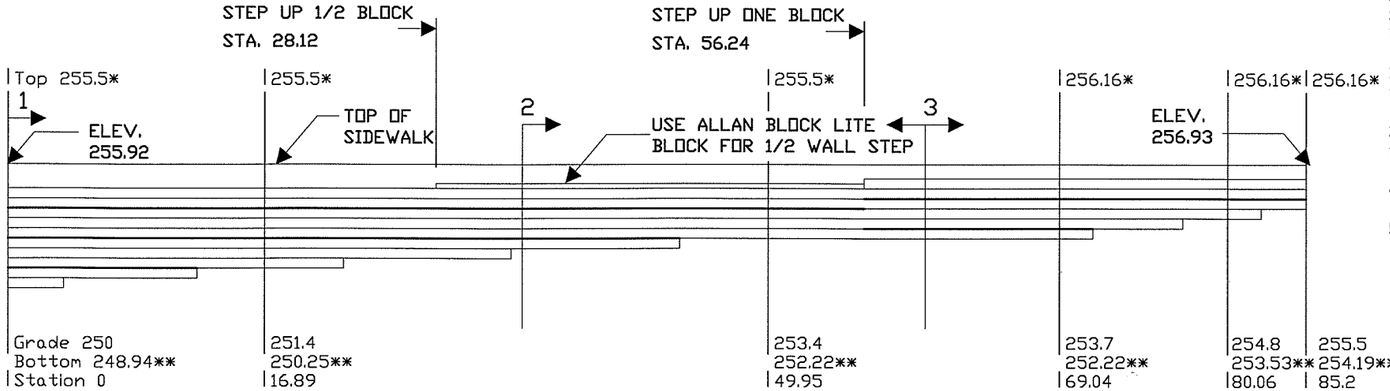
SOUNDWALL PLAN AND ELEVATIONS
SOUNDWALL #7

STATE OF WASHINGTON
ERNEST NELSON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/

CH2MHILL

CLARK COUNTY WASHINGTON

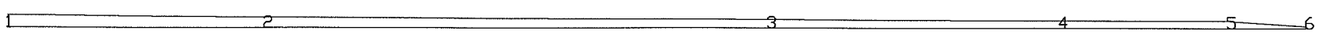
NDM:180257: ABWall 7.dwg 01-Nov-200308:42:26



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

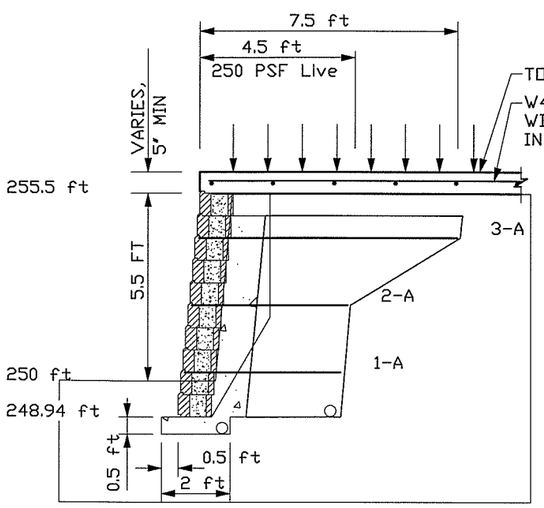
* ELEV. OF TOP OF TOP BLOCK.
** ELEV. OF BOTTOM OF BOTTOM BLOCK.

FRONT ELEVATION VIEW OF RETAINING WALL #7

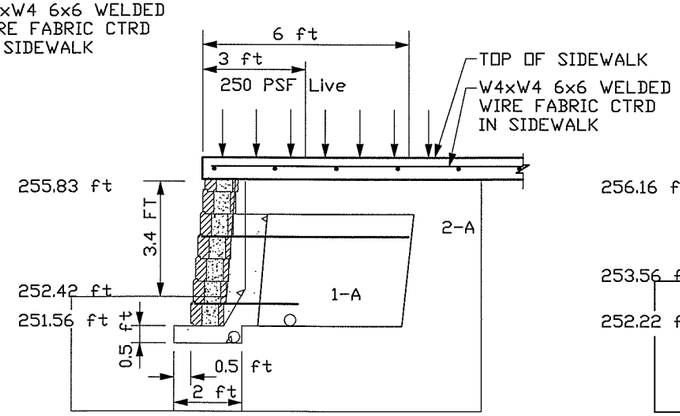


PLAN VIEW OF RETAINING WALL #7

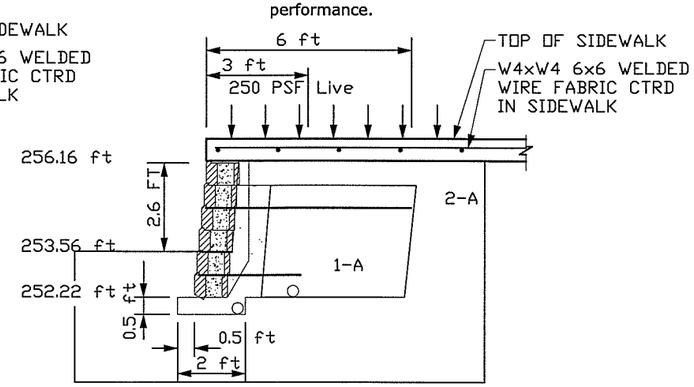
FOR IDENTIFICATION ONLY



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 UTILITY NOTIFICATION CENTER

DESIGN & ENGINEERING DIVISION

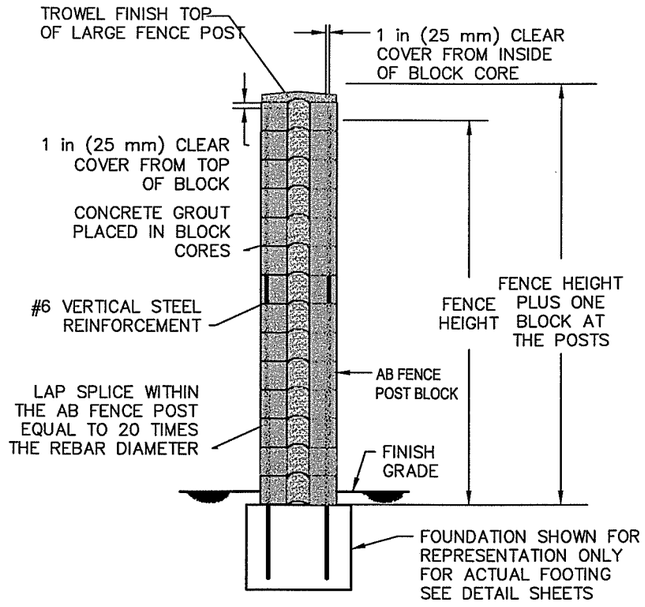
RETAINING WALL PLAN AND ELEVATION SOUNDWALL #7

STATE OF WASHINGTON CHRISTOPHER STEVEN NELSON 37799 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10/29/__

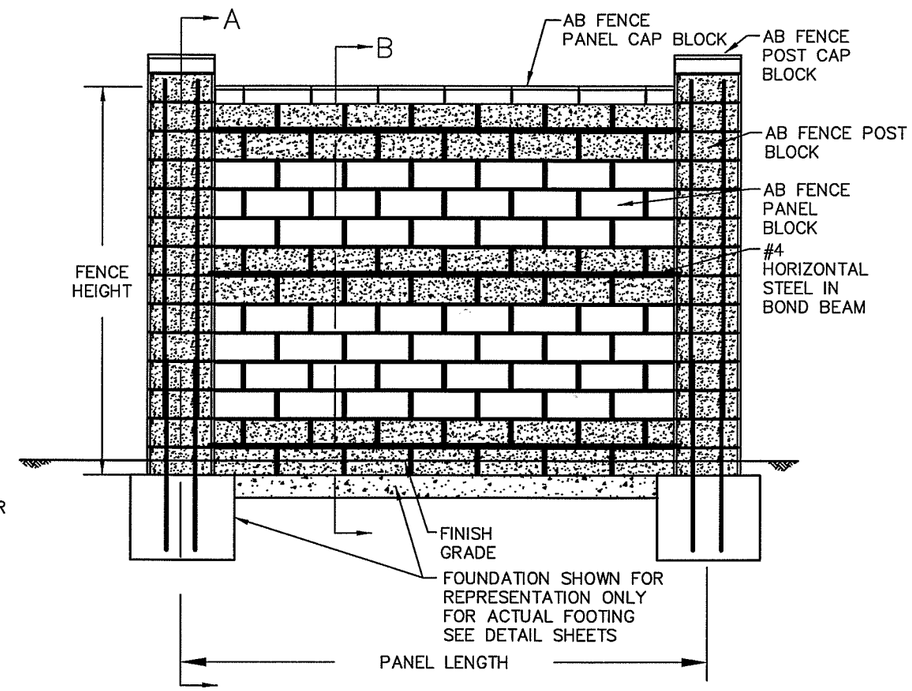
CH2MHILL

CLARK COUNTY WASHINGTON

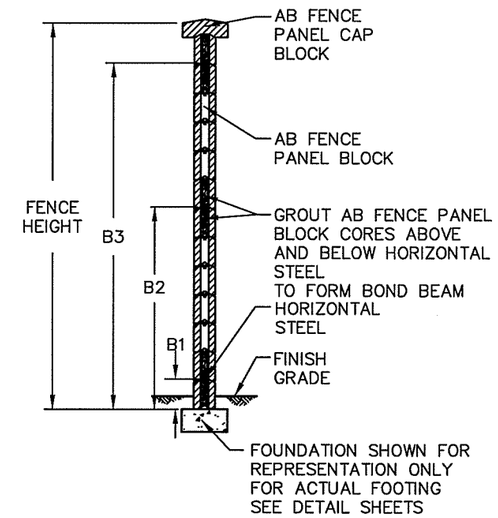
NDM:180257; AB Retaining Wall 7.dwg 11-17-03 08:42:28



1.1 AB FENCE POST SECTION A

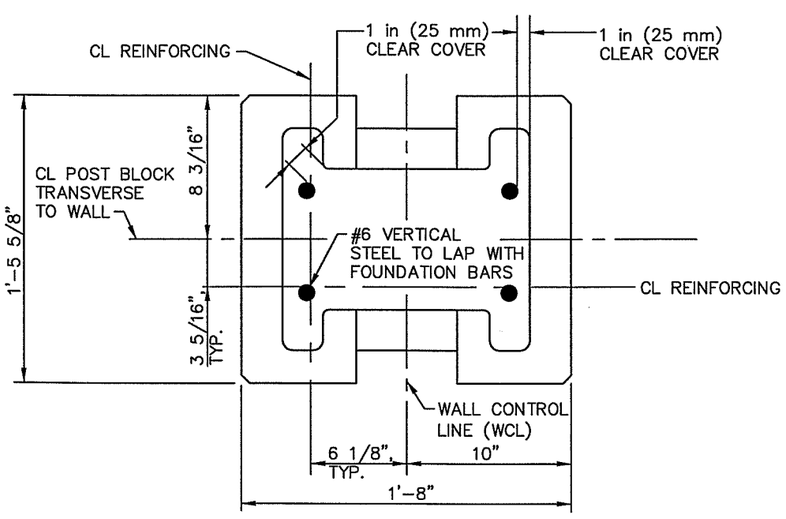


1.2 AB FENCE PANEL ELEVATION

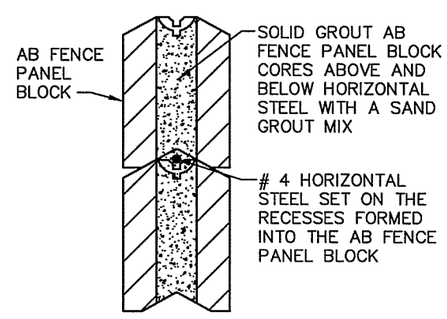


NOTE:
FOR ACTUAL BOND BEAM LOCATIONS SEE ALLAN BLOACK FENCE PANEL TYPE TABLE ON ELEVATION SHEETS

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

DESIGNED AB, CEN
DRAWN AB, DLM
CRP 301422
HOR. 1"=10'-0"
VERT. 1"=10'-0"
DATE 10-31-03
DWG: B26
SHEET 26 OF 26

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

DESIGN & ENGINEERING DIVISION

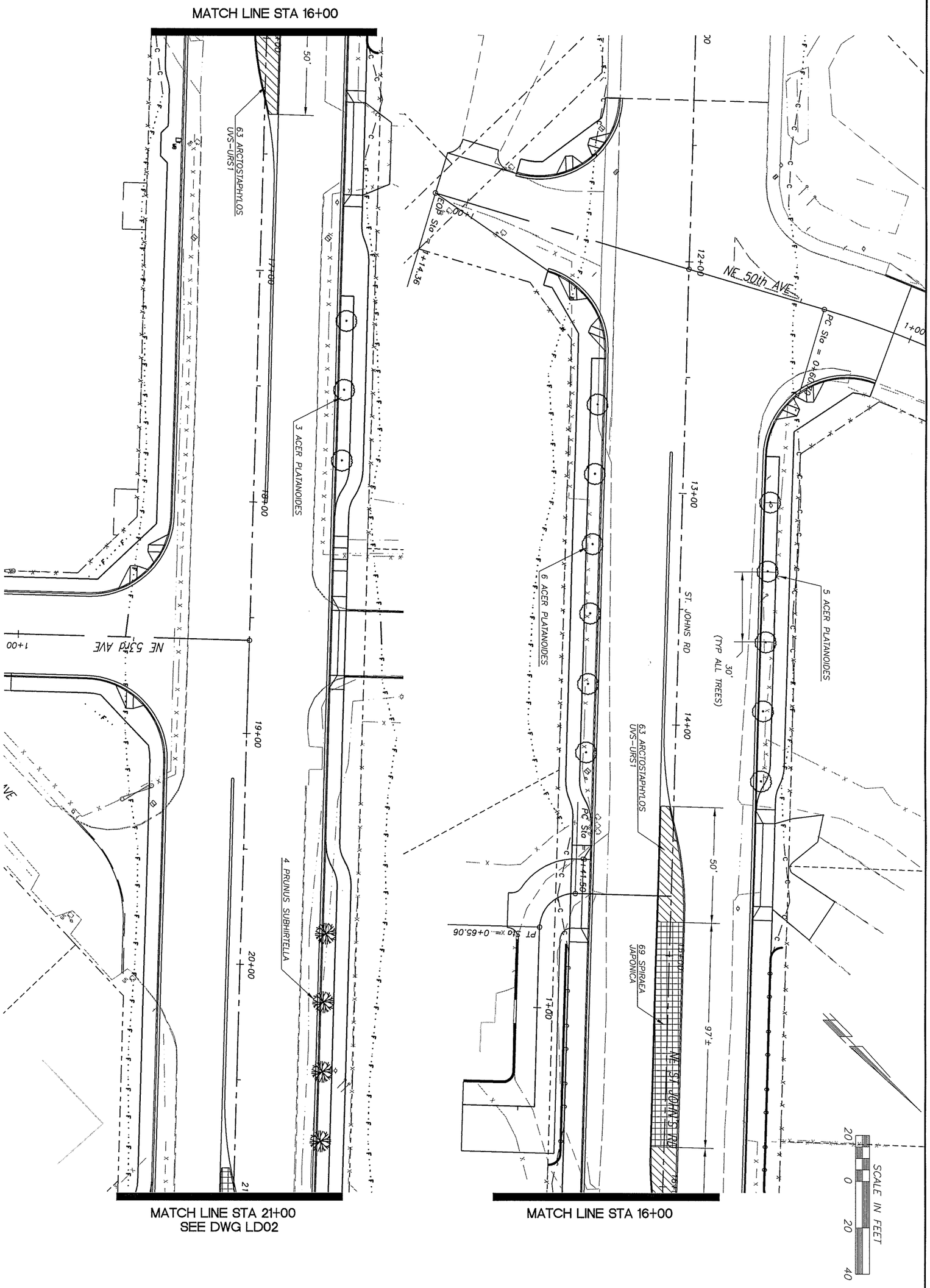
SOUNDWALL DETAIL AND GENERAL NOTES

CH2MHILL

CLARK COUNTY WASHINGTON

01-Feb-2002 08:42:26

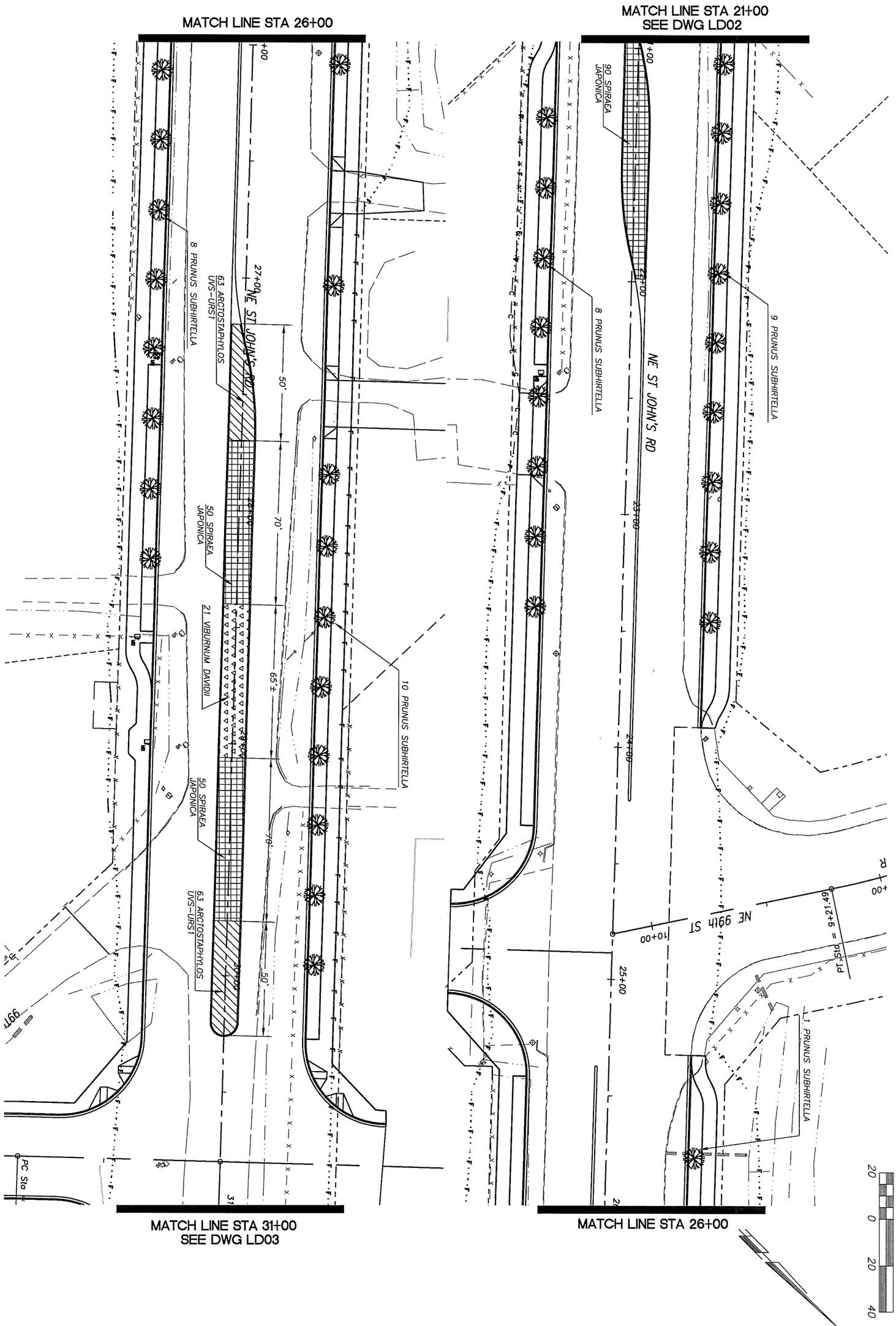
NDM:180257: ABborder.mat



proud past, promising future CLARK COUNTY WASHINGTON	DESIGN & ENGINEERING DIVISION DESIGN SECTION *ST. JOHNS RD (NE 50TH TO NE 72ND)* *LANDSCAPE PLAN (B.O.P. TO STA 21+00)*	MICHAEL M. EMBICK STATE OF WASHINGTON 25030 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 26, 2005

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

DESIGNED	JC
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	LD01
SHEET	OF



proud past, promising future

CLARK COUNTY
WASHINGTON

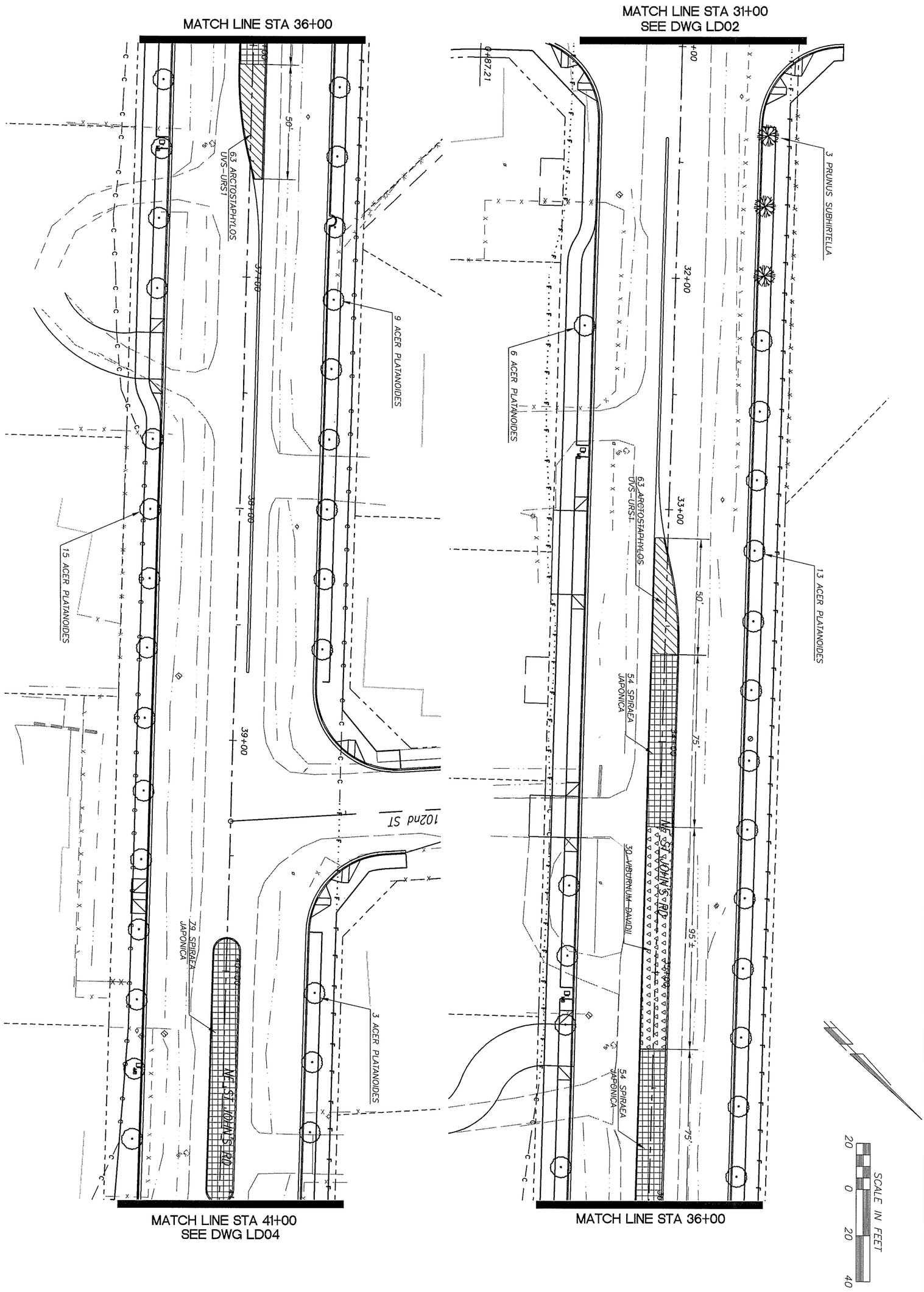
DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
LANDSCAPE PLAN (STA 21+00 TO STA 31+00)

MICHAEL M. KIMMICK
STATE OF WASHINGTON
29630
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

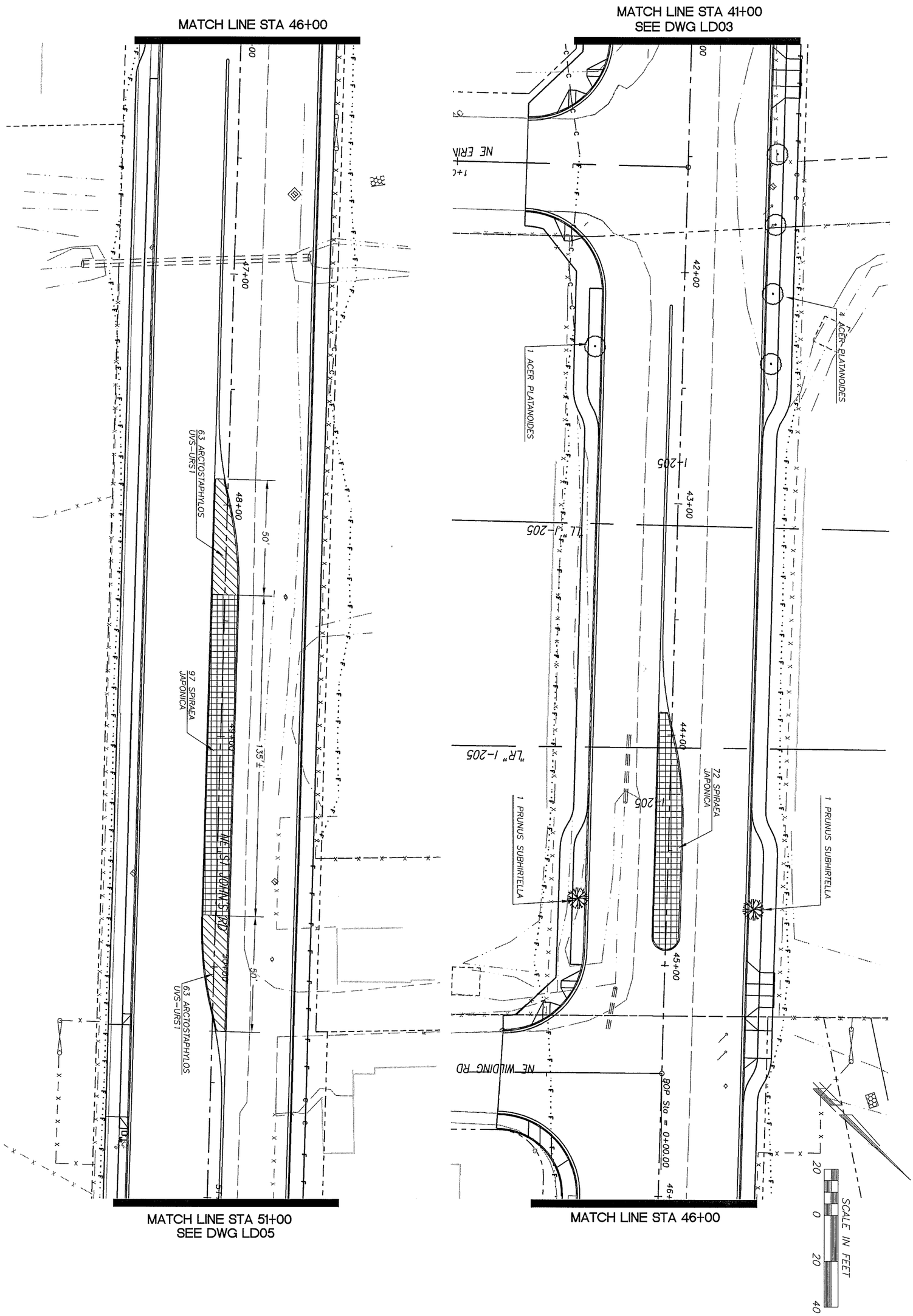
CALL 48 HOURS BEFORE YOU DIG
1-800-553-4344
"It's the Law"
NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGNED	JC
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	LD02
SHEET	OF



proud past, promising future CLARK COUNTY WASHINGTON	DESIGN & ENGINEERING DIVISION DESIGN SECTION *ST. JOHNS RD (NE 50TH TO NE 72ND)* *LANDSCAPE PLAN (STA 31+00 TO STA 41+00)*	MICHAEL M. EARNEST STATE OF WASHINGTON 29030 REGISTERED PROFESSIONAL ENGINEER EXPIRES:MAY 26, 2005	CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGNED	JC
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	LD03
SHEET	OF



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CLARK COUNTY
WASHINGTON

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
LANDSCAPE PLAN (STA 41+00 TO STA 51+00)

MICHAEL M. ENDICK
STATE OF WASHINGTON
29030
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

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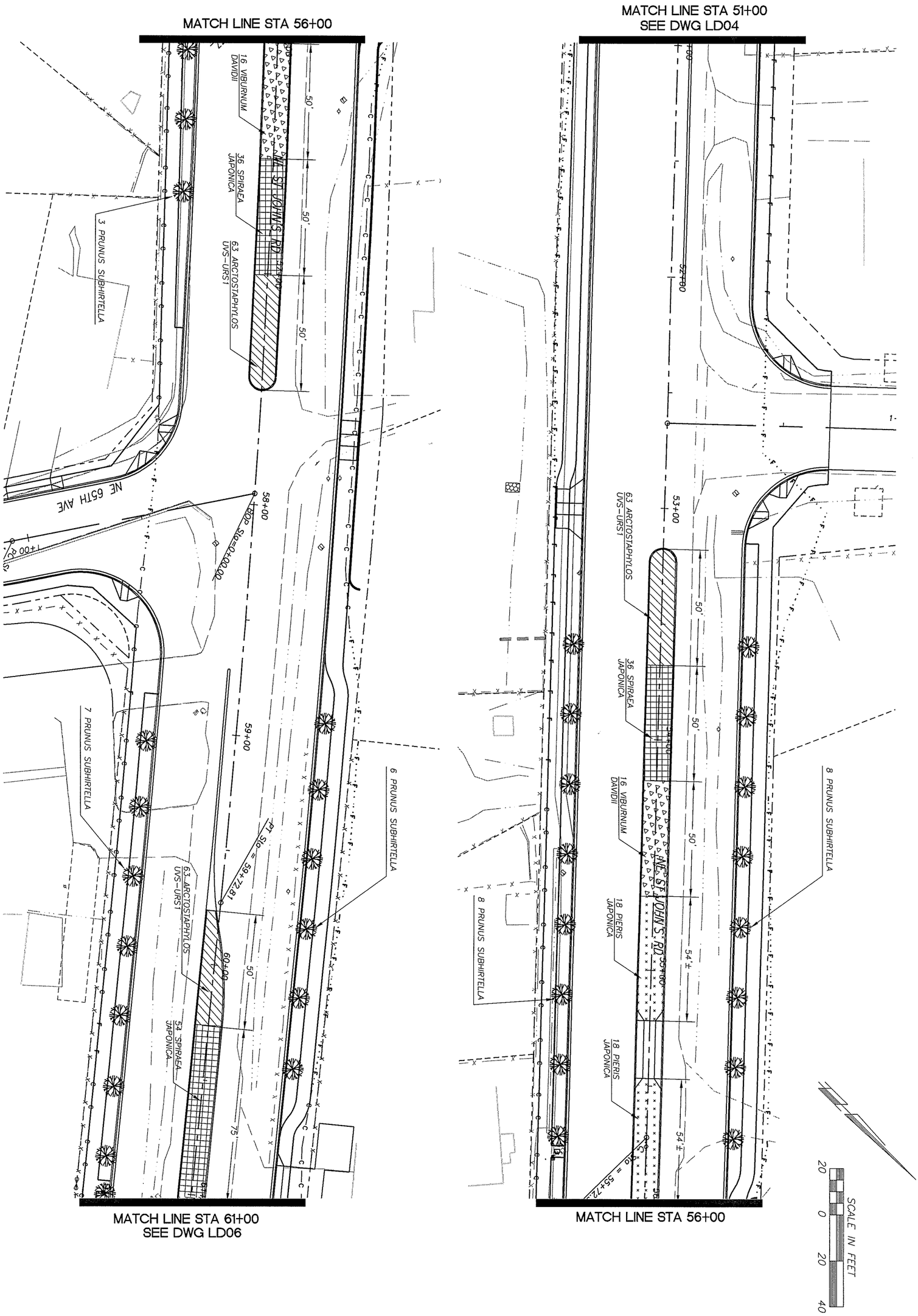
NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGNED	JC
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	LD04
SHEET	OF



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DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
LANDSCAPE PLAN (STA 51+00 TO STA 61+00)

MICHAEL M. LIMPICH
STATE OF WASHINGTON
29030
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

CALL 48 HOURS BEFORE YOU DIG
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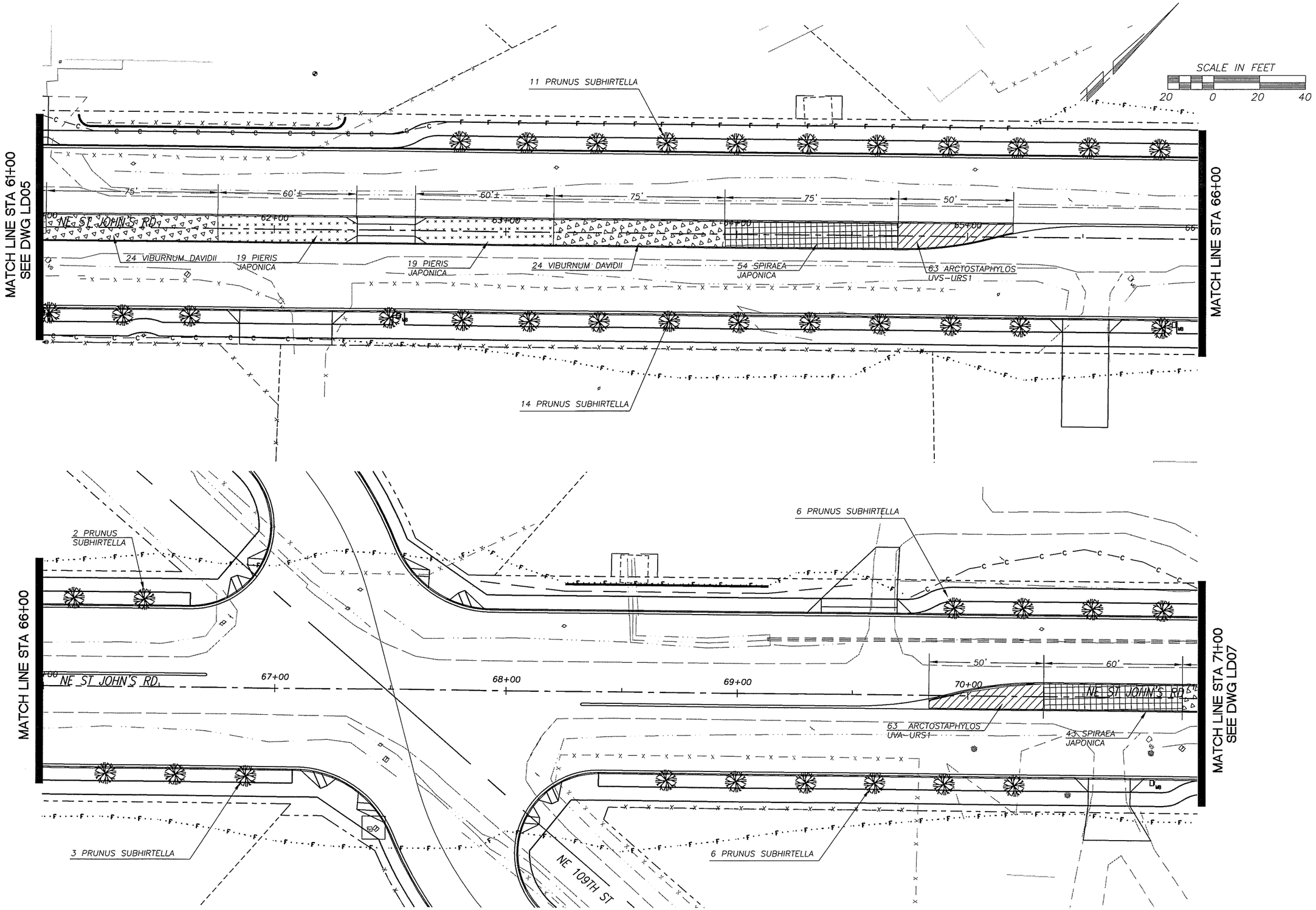
DESIGNED	JC
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	LD05
SHEET	OF



DESIGNED	JC
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CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	LD06
SHEET	OF

CALL 48 HOURS BEFORE YOU DIG
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MICHAEL M. EMICK
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
LANDSCAPE PLAN (STA 61+00 TO STA 71+00)

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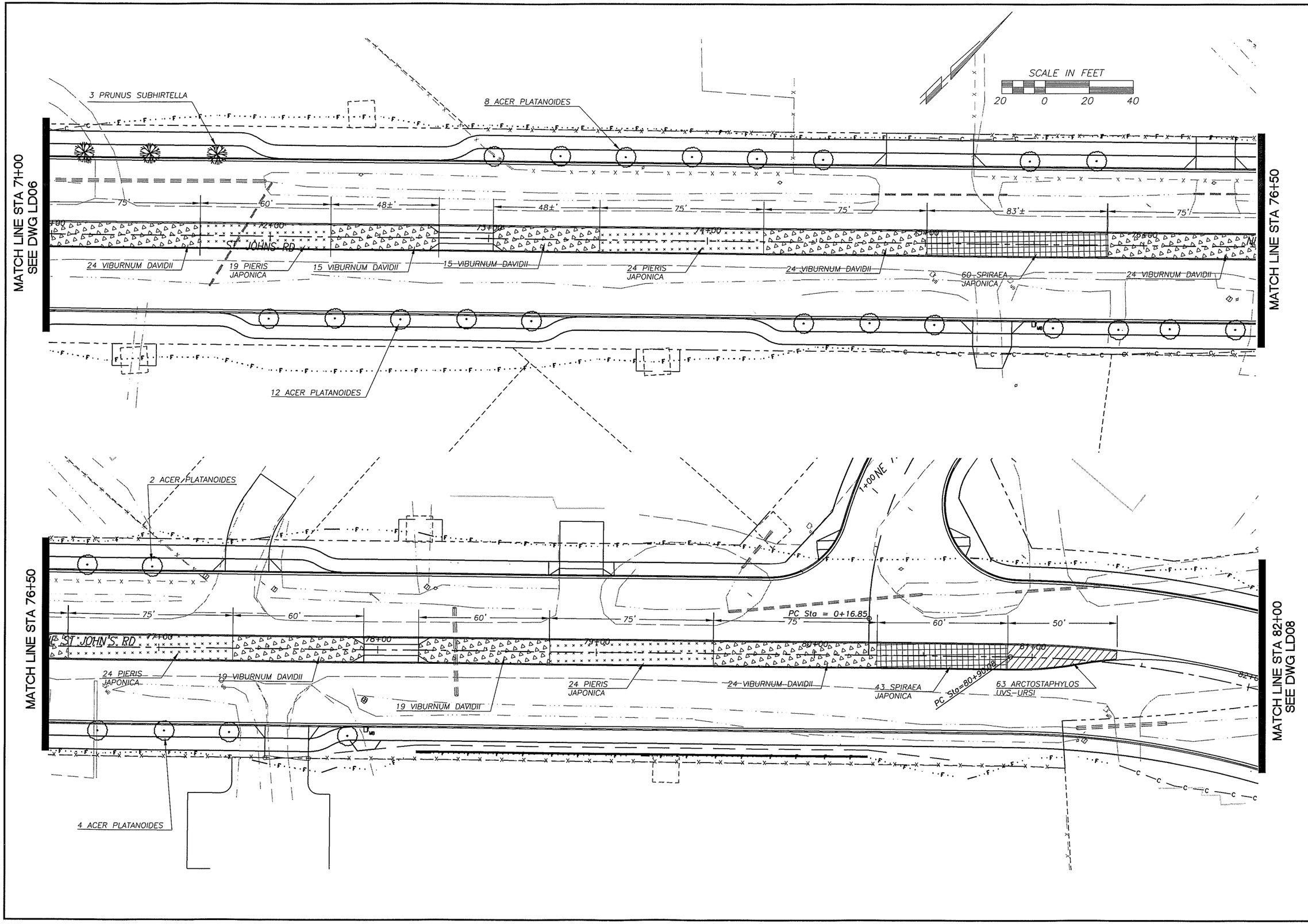

DESIGNED	JC
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CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
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SHEET	OF

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STEVEN K. MARCK
STATE OF WASHINGTON
28030
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 28, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
LANDSCAPE PLAN (STA 71+00 TO STA 81+00)

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CLARK COUNTY
WASHINGTON

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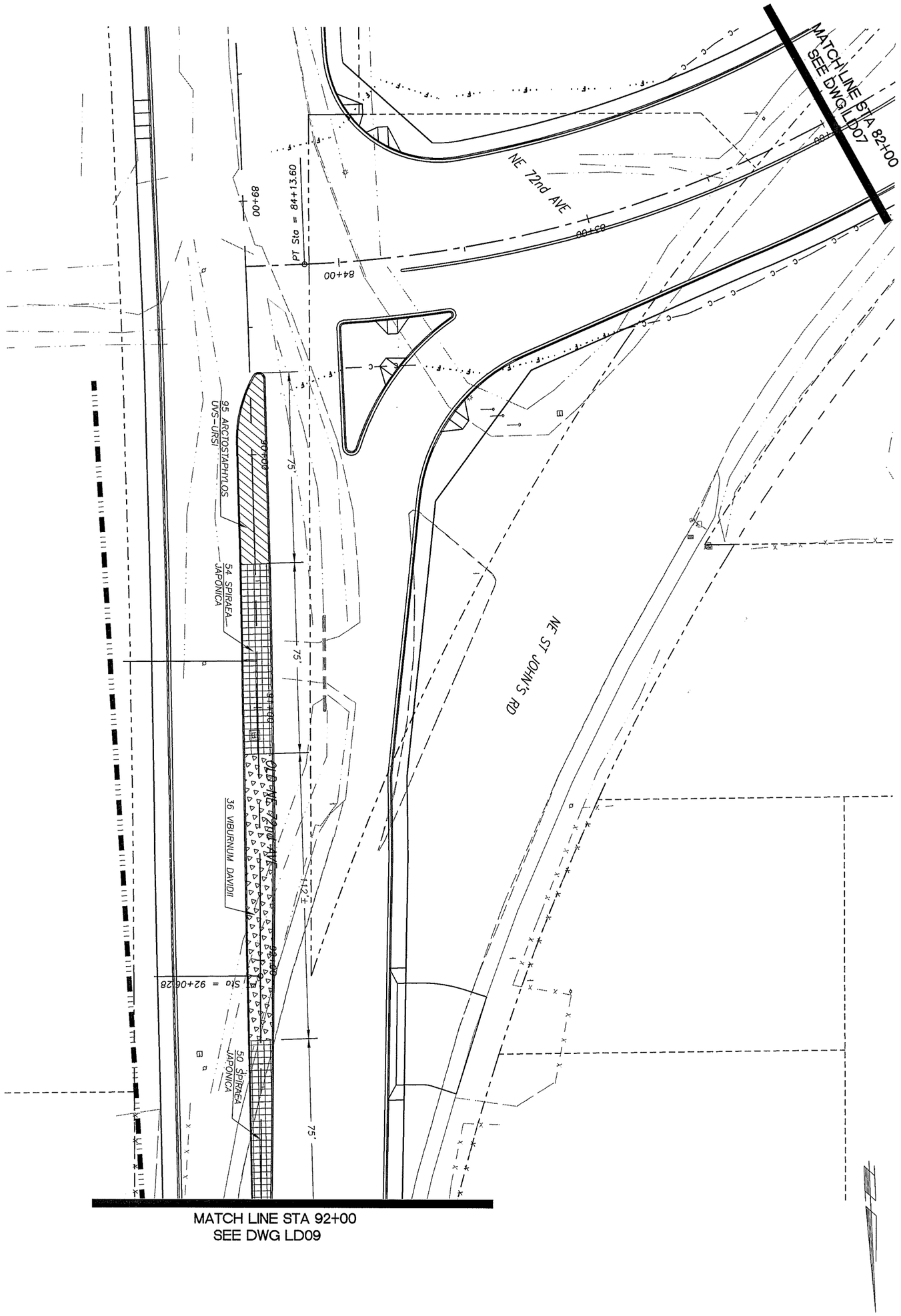

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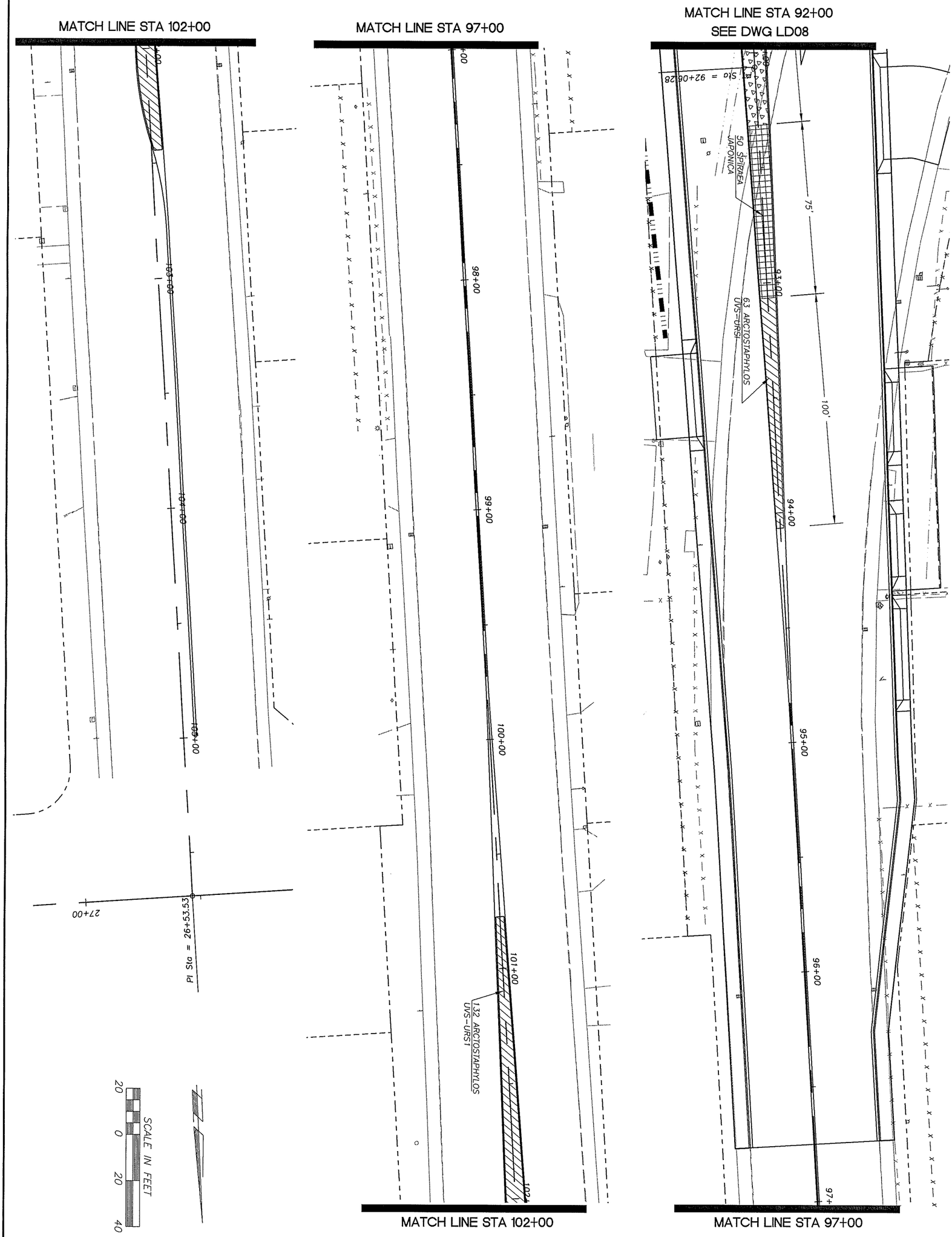
DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
LANDSCAPE PLAN (STA 81+00 TO STA 91+00)

MICHAEL M. BURDICK
STATE OF WASHINGTON
29030
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

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

DESIGNED	JC
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	LD08
SHEET	OF



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CLARK COUNTY
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DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
LANDSCAPE PLAN (STA 91+00 TO E.O.P.)

MICHAEL M. ENNICK
STATE OF WASHINGTON
29030
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

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NORTHWEST UTILITIES NOTIFICATION CENTER

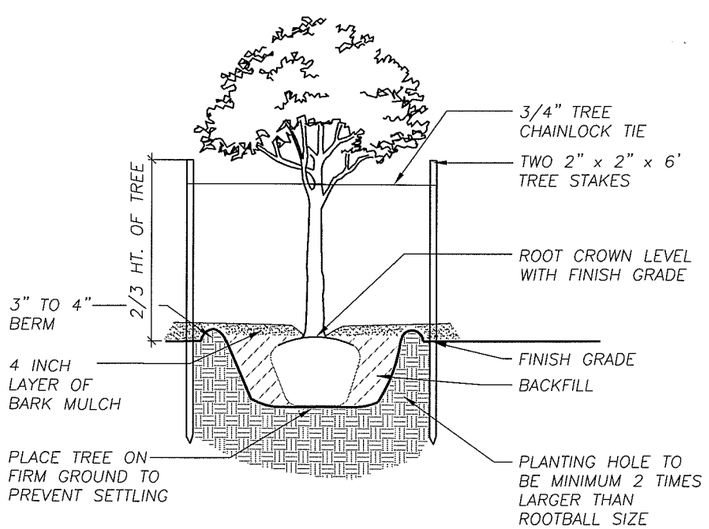
DESIGNED	JC
DRAWN	BAK
CRP	301422
HOR.	1"=20'
VERT.	1"=5'
DATE	3/29/04
DWG:	LD09
SHEET	OF

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.

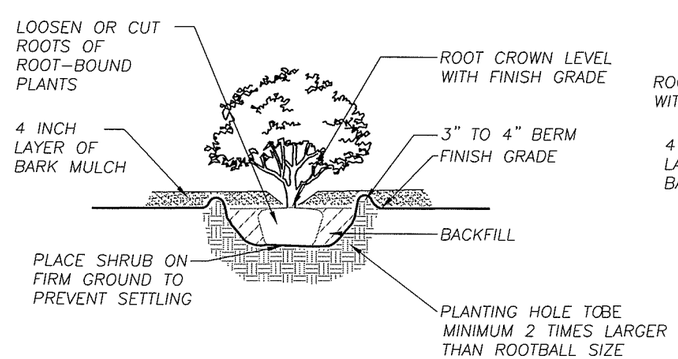
PLANTING NOTES

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.



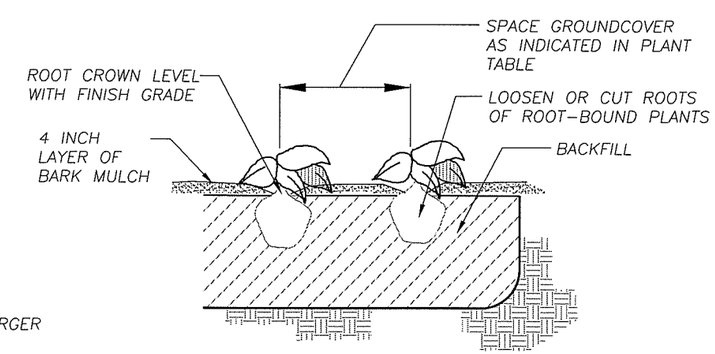
TREE PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

NOT TO SCALE



GROUNDCOVER PLANTING DETAIL

NOT TO SCALE

DESIGNED ME
DRAWN BAK
CRP 301422
HOR. NA
VERT. NA
DATE 3/29/04
DWG: LD10
SHEET OF

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JACK E. ELMICK STATE OF WASHINGTON 22360 REGISTERED PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2005

DESIGN & ENGINEERING DIVISION
DESIGN SECTION

ST. JOHNS RD (NE 50TH TO NE 72ND)
LANDSCAPE NOTES

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