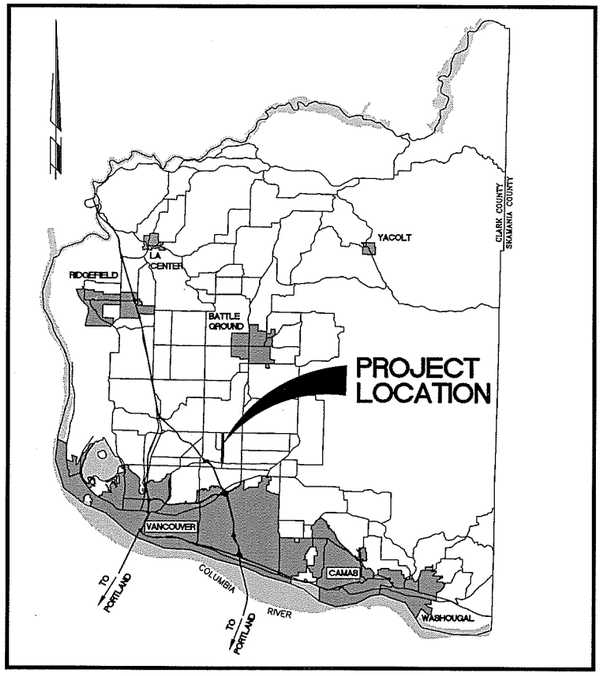
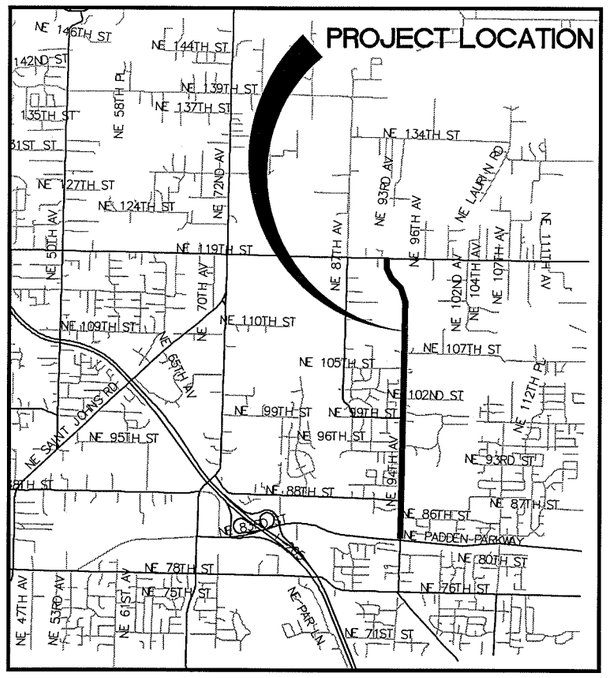
CAPITAL IMPROVEMENTS PROGRAM
COUNTY ROAD PROJECT #350822

NE 94TH AVENUE

VICINITY OF NE PADDEN PARKWAY TO NE 119TH STREET

PLANS FOR THE CONSTRUCTION OF
ROADWAYS, SIGNALIZATION AND STORM DRAINAGE





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X I09 RAILROAD CROSSING (INCL TRACK AND SIGNAL WORK)

PRELIMINARY

30% REVIEW SET

ENG #

Quality Assurance	Project Manager	Public Works Director/ County Engineer
Larry Maddux, PLS — DATE:	Don Andrews, P.L.S. — DATE:	Peter Capell, P.E. — DATE:

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Recommended for Approval

Grading _____ Erosion _____

Storm Water Plan _____

Development Review Manager — Date

COMMISSIONERS:

BETTY SUE MORRIS, Chair
MARC BOLDT, Commissioner
STEVEN J. STUART, Commissioner

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DEPARTMENT OF
PUBLIC WORKS

ENGINEERING PROGRAM - DESIGN SECTION

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SUMMARY OF QUANTITIES

ItemNum	BID ITEM	UNIT	QUANTITY
109.07	MOBILIZATION	L.S.	1
109.10	MINOR CHANGE	CALC.	1
109.13	REPLACEMENT STAKING SERVICES	HOUR	10
	TRAFFIC CONTROL		
110.00	TRAFFIC CONTROL LABOR	HOUR	4300
110.10	TRAFFIC CONTROL SUPERVISOR	HOUR	1075
110.30	TEMPORARY TRAFFIC CONTROL DEVICES	L.S.	1
110.40	CONSTRUCTION SIGNS CLASS "A"	S.F.	300
	PREPARATION		
201.01	CLEARING AND GRUBBING	ACRE	10
201.20	ROADSIDE CLEANUP	EST.	1
202.00	REMOVAL OF STRUCTURES AND OBSTRUCTION	L.S.	1
202.00	REMOVAL OF BUILDING	EACH	1
202.12	DECOMMISSION WELL	EACH	1
	GRADING		
203.10	ROADWAY EXCAVATION (INCL. HAUL)	C.Y.	18000
203.20	EMBANKMENT COMPACTION	C.Y.	34000
203.30	GRAVEL BORROW (INCL. HAUL)	TON	16000
203.51	SAWCUT EXISTING CONCRETE	L.F.	500
207.00	WATER	MGAL	700
212.03	CONSTRUCTION GEOTEXTILE FOR SOIL STABILIZATION	S.Y.	20000
212.11	WETLAND BALLAST	S.Y.	20000
	SURFACING		
404.50	CRUSHED SURFACING BASE COURSE	TON	20000
404.52	CRUSHED SURFACING TOP COURSE	TON	207
	ASPHALT CONCRETE PAVEMENT		
504.02	ASPHALT CONCRETE PAVEMENT CL. A	TON	6000
504.03	ASPHALT CONCRETE PAVEMENT CL. E	TON	8000
504.11	SAWCUT EXISTING ASPHALT PAVEMENT	L.F.	500
504.14	PLANING BITUMINOUS PAVEMENT	S.Y.	6000
504.21	ASPHALT CONCRETE APPROACH CL A	S.Y.	3500
	STRUCTURES		
612.30	NOISE BARRIER/RETAINING WALL DESIGN	L.S.	1
612.32	NOISE BARRIER/RETAINING WALL	S.F.	27200
	DRAINAGE STRUCTURES, STORM SEWER, UTILITIES		
704.10	STORM SEWER PIPE, 10 IN. DIAM.	L.F.	1500
704.12	STORM SEWER PIPE, 12 IN. DIAM.	L.F.	6000
704.18	STORM SEWER PIPE, 18 IN. DIAM.	L.F.	600
705.01	MANHOLE 48 IN. DIAM. TYPE 1	EACH	20
705.14	MANHOLE 60 IN. DIAM. TYPE 3	EACH	6
705.35	CATCH BASIN TYPE 1	EACH	12
705.63	CONCRETE COMBINATION CURB INLET	EACH	44
	EROSION CONTROL AND PLANTING		
	EROSION CONTROL AND LANDSCAPING	L.S.	1
	OTHER		
	STORMWATER & WETLAND (INCL ROW COST)	L.S.	1
	WETLAND MITIGATION (2.62 ACRE IMPACT @ 4:1)	ACRE	10.48
804.01	CEMENT CONC. BARRIER CURB AND GUTTER	L.F.	32000
806.00	CEMENT CONCRETE APPROACH, 3-DAY	S.Y.	800
814.01	CEMENT CONCRETE SIDEWALK	S.Y.	12000
820.30	TRAFFIC SIGNAL SYSTEM (NE 94th Ave/NE 88th St)	L.S.	1
820.30	TRAFFIC SIGNAL SYSTEM (NE 94th Ave/NE 99th St)	L.S.	1
820.30	TRAFFIC SIGNAL SYSTEM (NE 94th Ave/NE 107th St)	L.S.	1
820.30	TRAFFIC SIGNAL SYSTEM (NE 94th Ave/NE 119th St)	L.S.	1
820.30	RAILROAD CROSSING (INCL TRACK AND SIGNAL WORK)	L.S.	1

PRELIMINARY

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	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
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DWG:	SQ01
SHEET	2 OF 61

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STATE OF WASHINGTON BRUCE A. ALLEN 37868 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
SUMMARY OF QUANTITIES AND LEGEND

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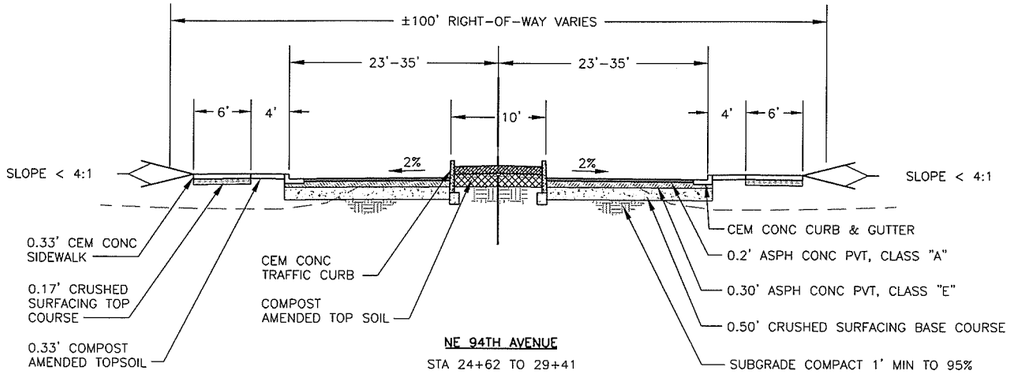
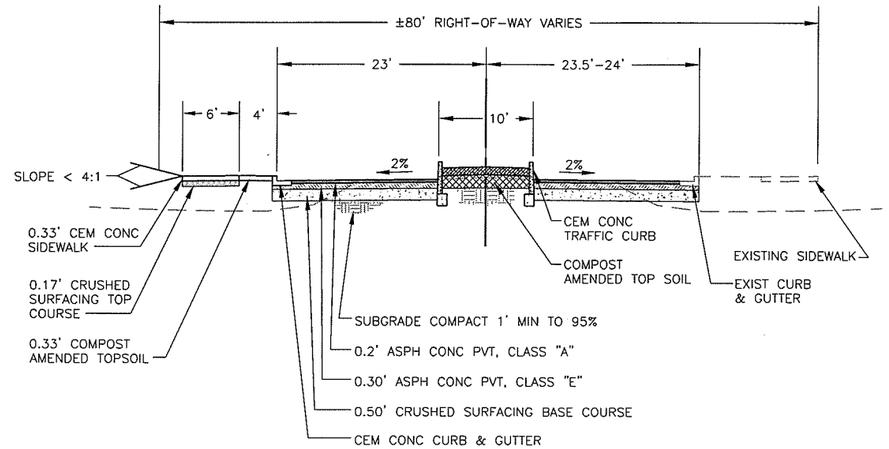
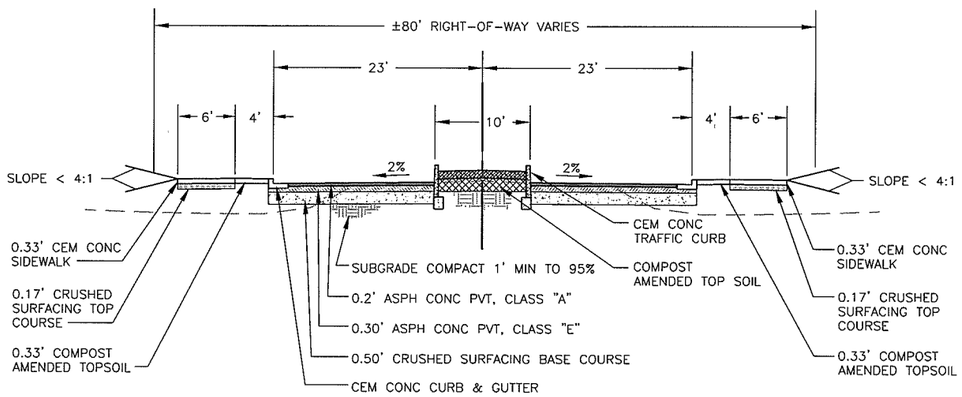


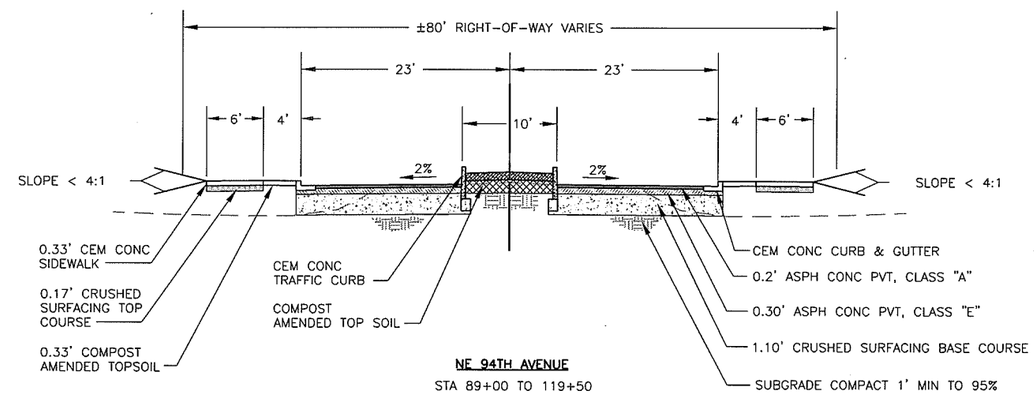
NE 94TH AVENUE
STA 24+62 TO 29+41



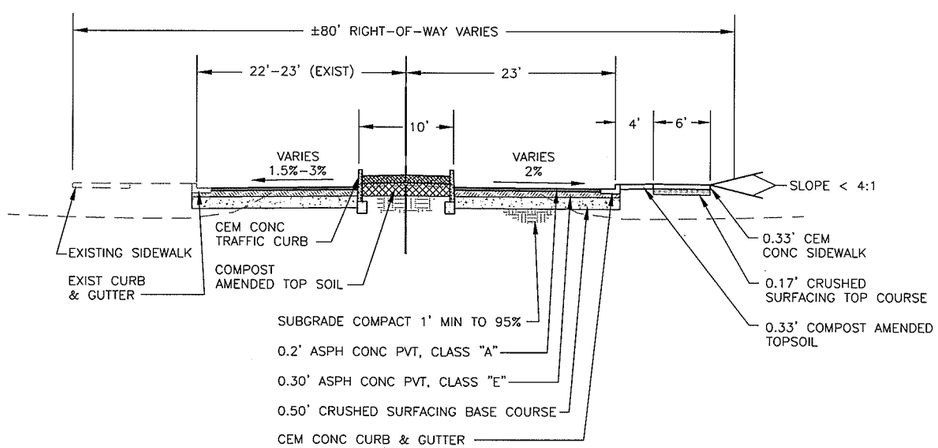
NE 94TH AVENUE
STA 65+47 TO 77+81



NE 94TH AVENUE
STA 29+41 TO 42+65
STA 54+00 TO 65+47
STA 77+81 TO 89+00



NE 94TH AVENUE
STA 89+00 TO 119+50



NE 94TH AVENUE
STA 42+65 TO 54+00

PRELIMINARY

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SHEET	3 OF 61

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STATE OF WASHINGTON
BRUCE A. ALLEN
19868
REGISTERED PROFESSIONAL ENGINEER
EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
TYPICAL SECTIONS

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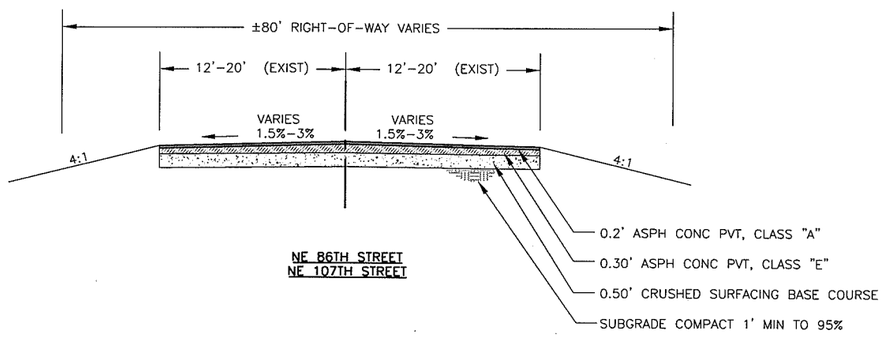
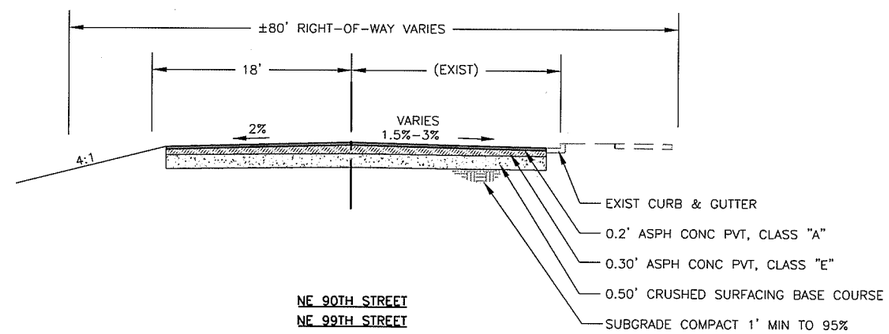
PRELIMINARY



NE 86TH STREET
NE 107TH STREET



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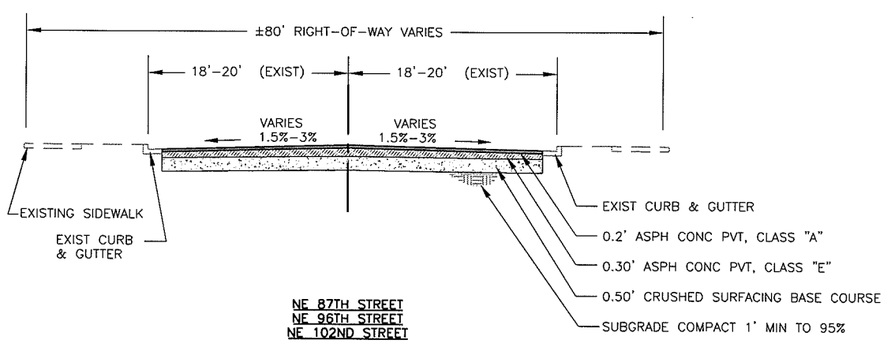
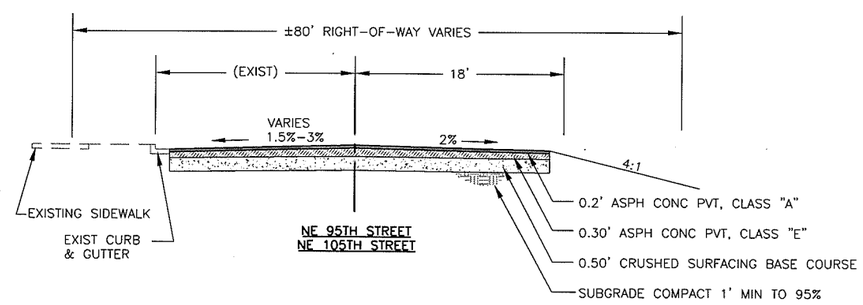
NE 99TH STREET



NE 87TH STREET
NE 96TH STREET
NE 102ND STREET



NE 95TH STREET
NE 105TH STREET

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SHEET	4 OF 61

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33868
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NE 94TH AVENUE
TYPICAL SECTIONS

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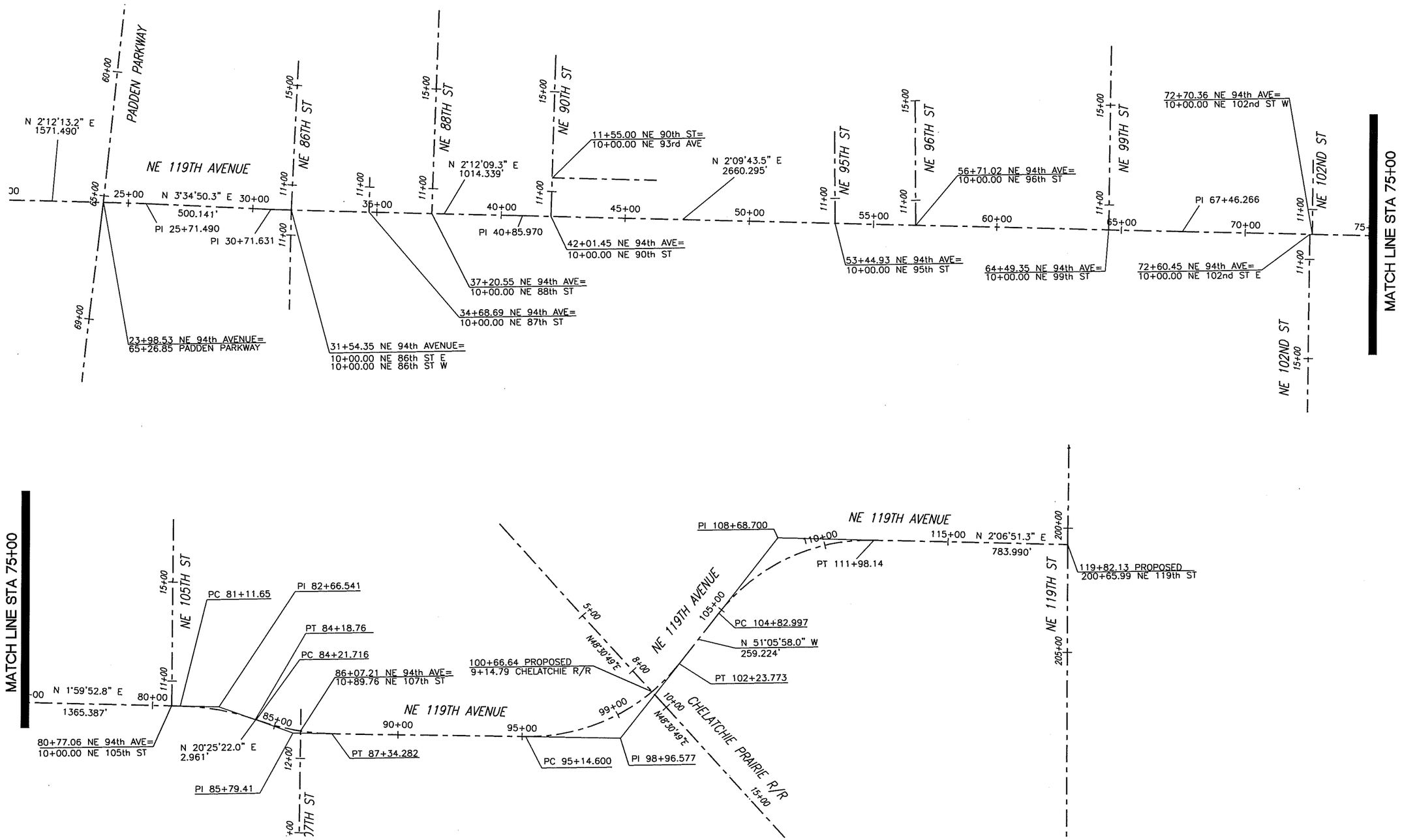

PRELIMINARY

NUMBER	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH	CHORD LENGTH
C1	45°23'33"	299.54'	716.20'	567.41'	552.69'
C2	01°27'36"	98.12'	7700.00'	196.22'	196.22'
C3	01°27'36"	98.12'	7700.00'	196.22'	196.22'
C4	03°12'12"	223.69'	8000.00'	447.27'	447.21'
C5	03°12'12"	223.69'	8000.00'	447.27'	447.21'

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SHEET 5 OF 61

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ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
HORIZONTAL & VERTICAL CONTROL

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NOTE:
SIGNIFICANT VARIATION AND DEGREE OF EROSION CONTROL EFFORT WILL BE DICTATED BY WEATHER CONDITIONS. THE DEVELOPER AND CONTRACTOR SHOULD BE PREPARED TO PROVIDE EXTRA EROSION CONTROL PROVISIONS AND EFFORT DURING WINTER AND WET WEATHER CONDITIONS BEYOND THAT NORMALLY REQUIRED DURING SUMMER AND DRY WEATHER CONDITIONS. FINE GRAINED AND UNCONSOLIDATED SOILS ON SLOPING SITES MAY BECOME UNSTABLE WHEN SUBJECT TO EXCESSIVE MOISTURE.

PRELIMINARY

SCALE IN FEET

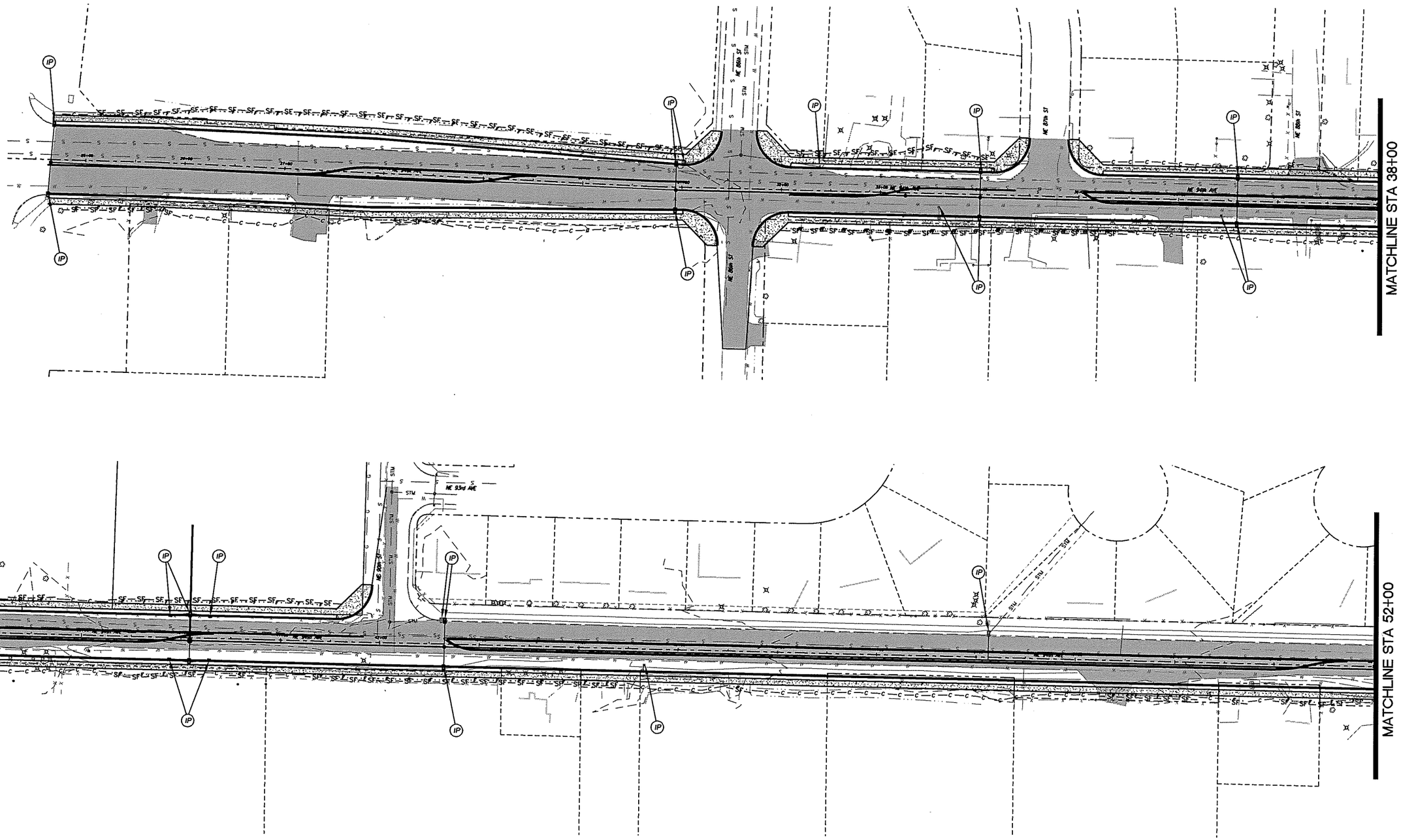
50 0 50 100

LEGEND

—SF—SF— SILT FENCE

(IP) INLET PROTECTION

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



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VERT.	SEE SHEET
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STATE OF WASHINGTON BRUCE A. KILLIC 20868 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
EROSION CONTROL PLAN

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NOTE:
SIGNIFICANT VARIATION AND DEGREE OF EROSION CONTROL EFFORT WILL BE DICTATED BY WEATHER CONDITIONS. THE DEVELOPER AND CONTRACTOR SHOULD BE PREPARED TO PROVIDE EXTRA EROSION CONTROL PROVISIONS AND EFFORT DURING WINTER AND WET WEATHER CONDITIONS BEYOND THAT NORMALLY REQUIRED DURING SUMMER AND DRY WEATHER CONDITIONS. FINE GRAINED AND UNCONSOLIDATED SOILS ON SLOPING SITES MAY BECOME UNSTABLE WHEN SUBJECT TO EXCESSIVE MOISTURE.

PRELIMINARY

SCALE IN FEET

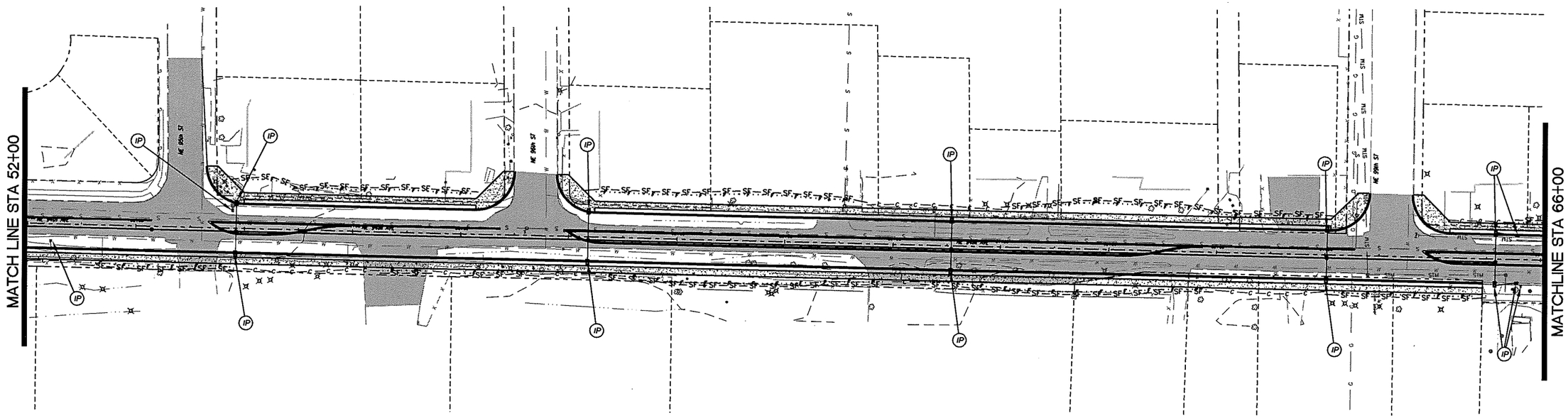
50 0 50 100

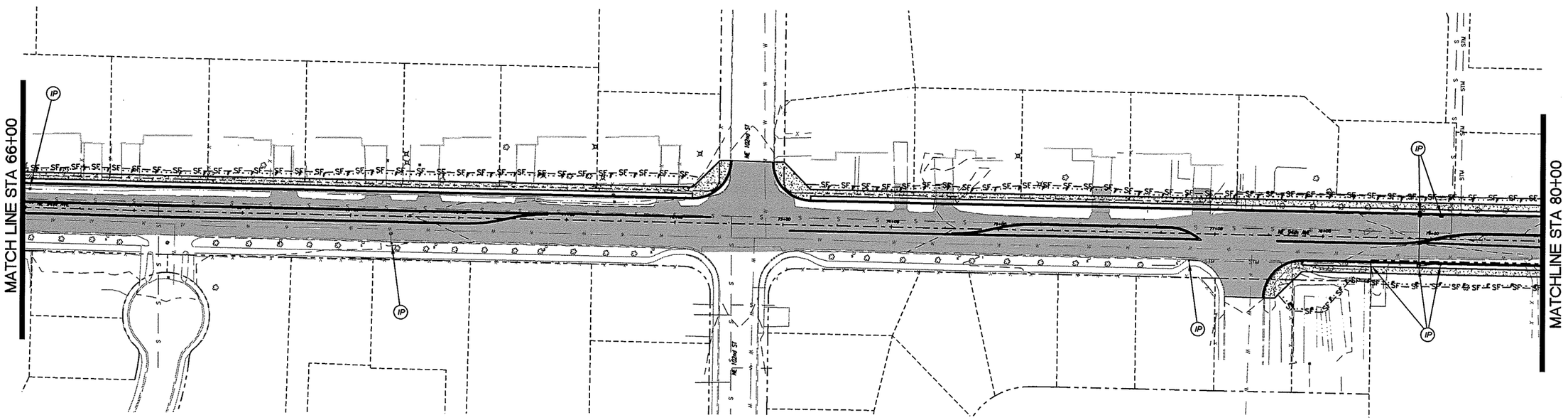
LEGEND

—SF—SF— SILT FENCE

(IP) INLET PROTECTION

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





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ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
EROSION CONTROL PLAN

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NOTE:
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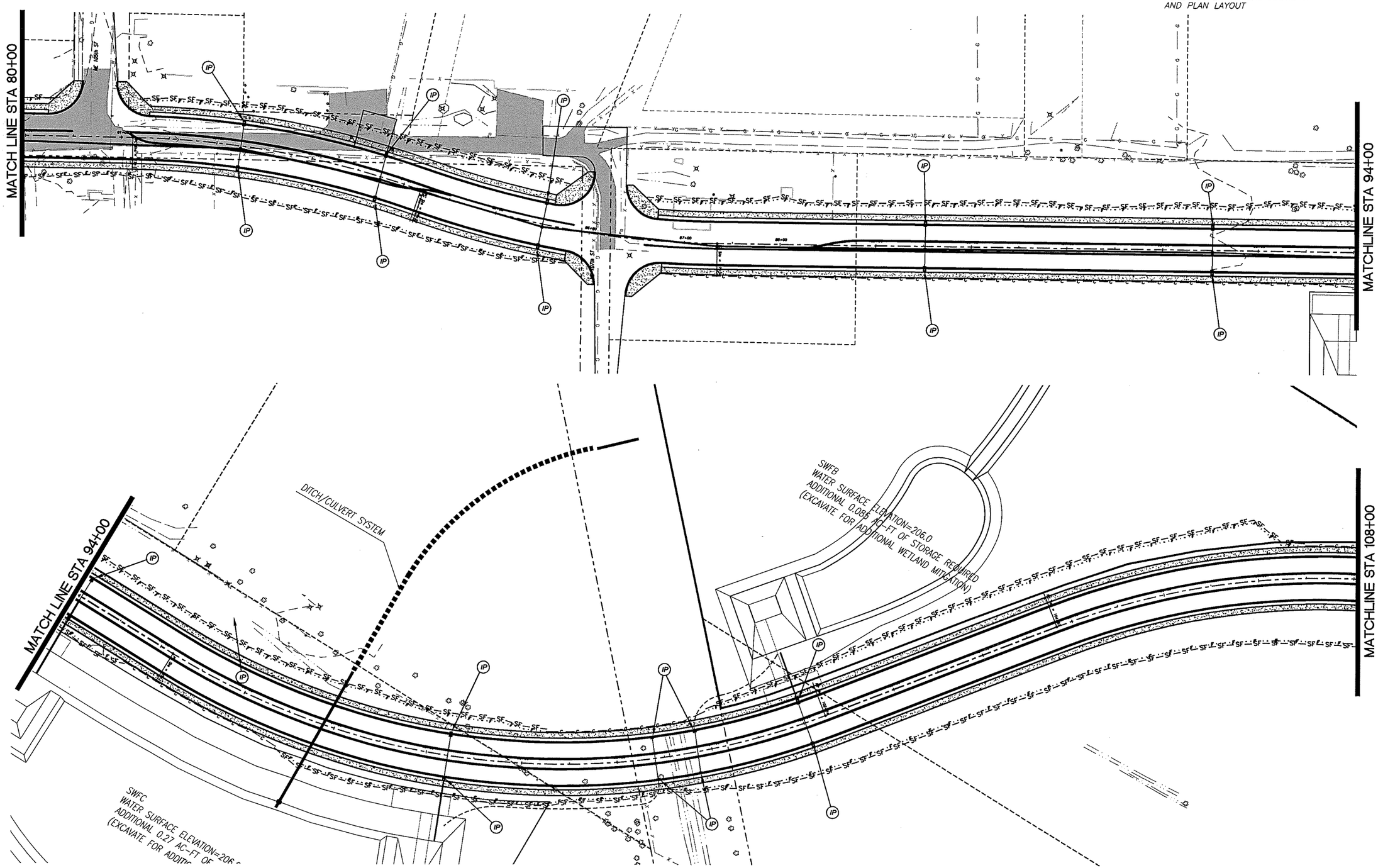
PRELIMINARY

SCALE IN FEET
50 0 50 100

LEGEND
—SF—SF— SILT FENCE
(IP) INLET PROTECTION
SAWCUT AND REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS AND PLAN LAYOUT



DESIGNED	BK/ME
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CRP	350822
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VERT.	SEE SHEET
DATE	09/15/05
DWG:	EC03
SHEET	X OF 61

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

STATE OF WASHINGTON
BRUCE A. MAC
70868
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
EROSION CONTROL PLAN

proud past, promising future
CLARK COUNTY
WASHINGTON

N:\CI\PROJECTS\350822-NE94thAve-Paddento119th\DESIGN\DWGS\EC1-4.dwg, EC03, 9/15/2005 3:12:07 PM, begleyk

NOTE:
SIGNIFICANT VARIATION AND DEGREE OF EROSION CONTROL EFFORT WILL BE DICTATED BY WEATHER CONDITIONS. THE DEVELOPER AND CONTRACTOR SHOULD BE PREPARED TO PROVIDE EXTRA EROSION CONTROL PROVISIONS AND EFFORT DURING WINTER AND WET WEATHER CONDITIONS BEYOND THAT NORMALLY REQUIRED DURING SUMMER AND DRY WEATHER CONDITIONS. FINE GRAINED AND UNCONSOLIDATED SOILS ON SLOPING SITES MAY BECOME UNSTABLE WHEN SUBJECT TO EXCESSIVE MOISTURE.

PRELIMINARY

SCALE IN FEET

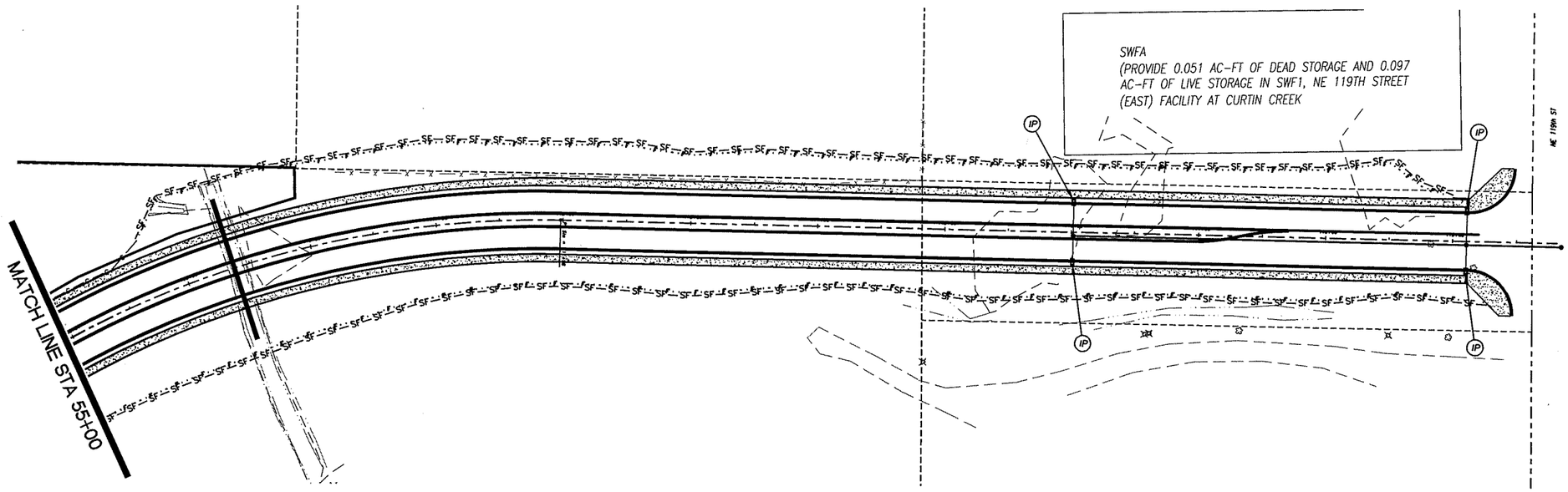
50 0 50 100

LEGEND

—SF—SF— SILT FENCE

IP INLET PROTECTION

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



DESIGNED BK/ME
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CRP 350822
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JOSEPH A. KILIK
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33868
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EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
EROSION CONTROL PLAN

proud past, promising future
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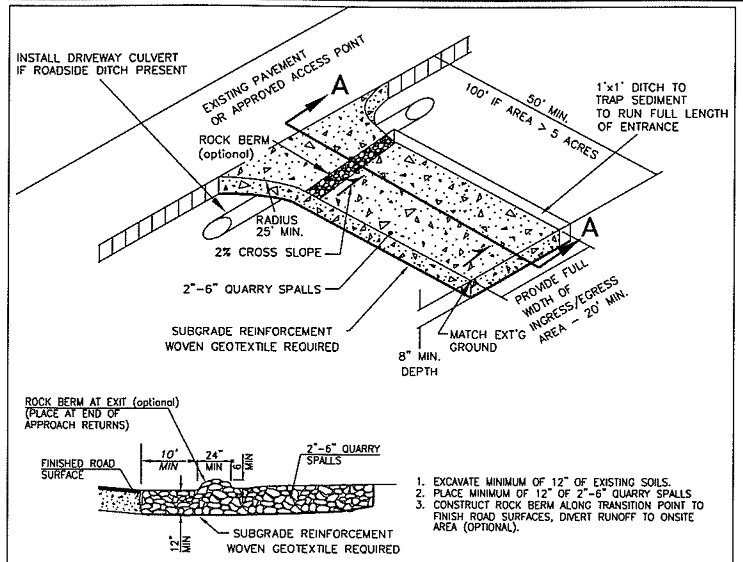

SECTION A-A

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

Department of Public Works
CLARK COUNTY
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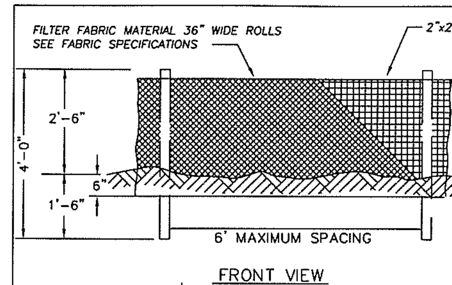
STANDARD CONSTRUCTION ENTRANCE

APPROVED
COUNTY ENGINEER — 01/01/04 DATE

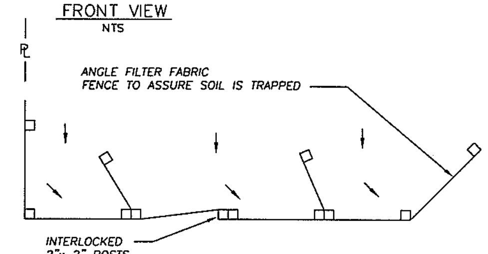
STANDARD E-1
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03



FRONT VIEW
NTS

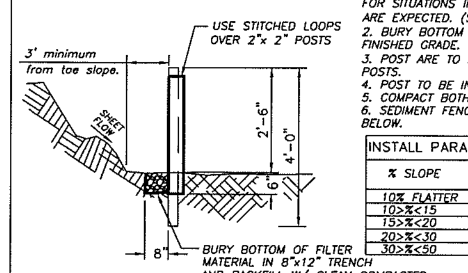
SEDIMENT FENCE FABRIC SPECIFICATIONS
(Woven Polyproylene sediment fence fabric)

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.
Permitivity	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%



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

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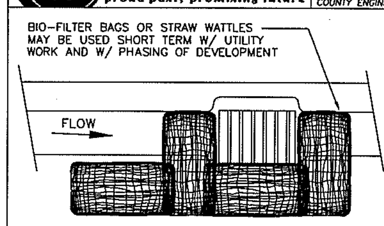
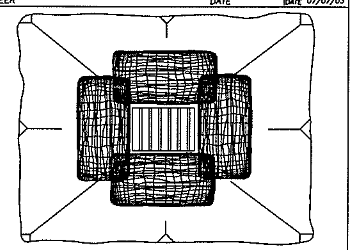
STANDARD SEDIMENT FENCE

APPROVED
COUNTY ENGINEER — 01/01/04 DATE

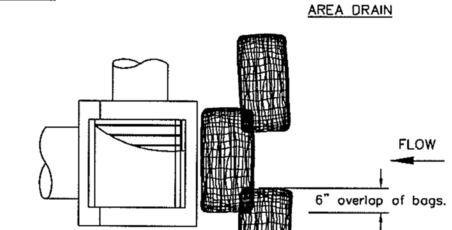
STANDARD E-4
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03



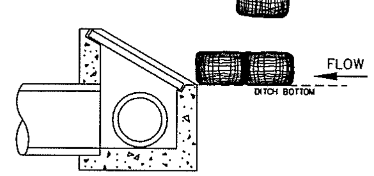
CATCH BASIN



AREA DRAIN



PLAN VIEW



DITCH INLET

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

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INLET PROTECTION TYPE 4
BIOFILTER BAGS

APPROVED
COUNTY ENGINEER — 01/01/04 DATE

STANDARD E-3c
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/02

PRELIMINARY

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

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STANDARD NOTES FOR
EROSION CONTOL PLAN

APPROVED
COUNTY ENGINEER — 01/01/04 DATE

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

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: ECN.DWG

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STANDARD NOTES (CONTINUED) FOR
EROSION CONTOL PLAN

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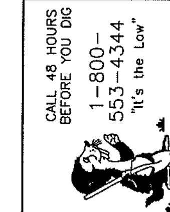
COUNTY ENGINEER — 01/01/04 DATE

STANDARD ECN2
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/22/03

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	EC5
SHEET	X OF 61



BRUCE A. KLUG
STATE OF WASHINGTON
39868
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
EROSION CONTROL DETAILS

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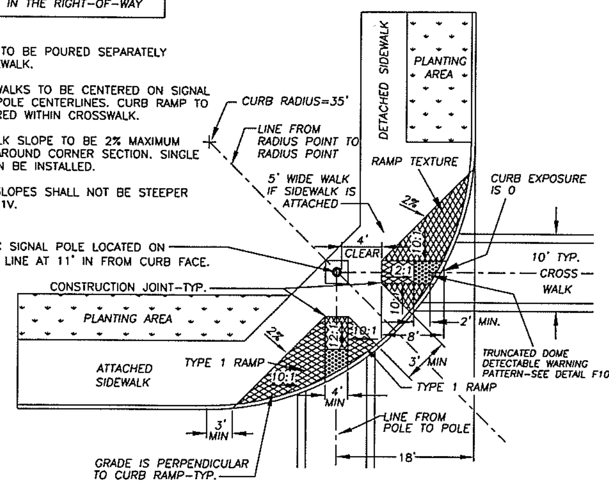
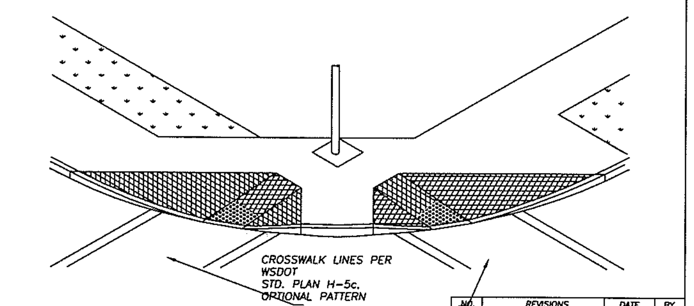
NEW CONSTRUCTION
FOR USE WITH SIDEWALKS LOCATED ANYWHERE IN THE RIGHT-OF-WAY

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.





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1	TRUNCATED DOMES	6/14/03	SCH

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TYPE 2 RAMP — F2
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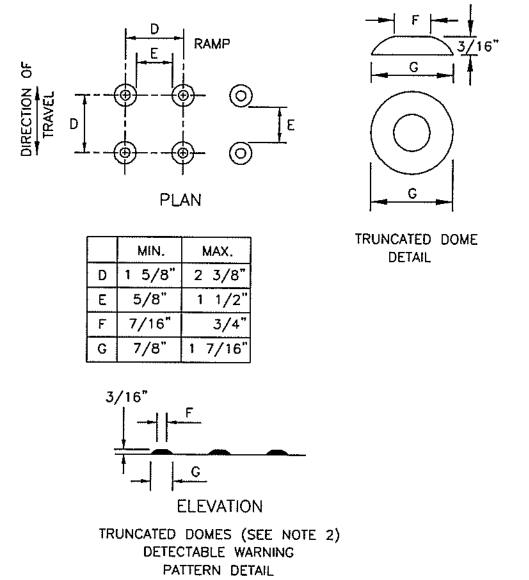
COUNTY ENGINEER — 8/22/00



	MIN.	MAX.
D	1 5/8"	2 3/8"
E	5/8"	1 1/2"
F	7/16"	3/4"
G	7/8"	1 7/16"

NOTES

1. AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREA.
2. THE DETECTABLE WARNING PATTERNS CAN BE CREATED BY ACCEPTABLE MEANS THAT WILL ACHIEVE THE TRUNCATED DOME DIMENSIONS AND SPACING SHOWN.
3. PLACE TRUNCATED DOME DETECTABLE WARNING TEXTURE IN THE LOWER 24" OF THE THROAT OF THE RAMP ONLY. ARRANGE DOMES USING IN-LINE PATTERN ONLY AS SHOWN. COLOR OF TEXTURE (COATING) SHALL BE SAFETY YELLOW IN COMPLIANCE WITH WSDOT STD. SPEC. OR AS INSTRUCTED BY COUNTY INSPECTOR.
4. FOR CONSTRUCTION OF SIDEWALK RAMPS OUTSIDE OF PUBLIC RIGHT-OF-WAY, CHECK WITH STATE BUILDING CODES.

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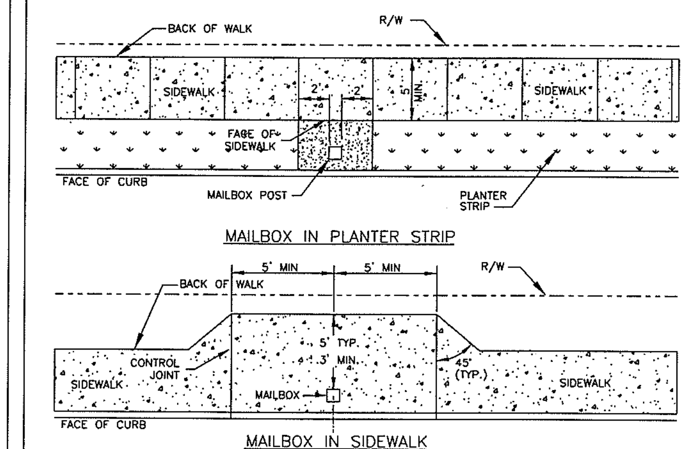
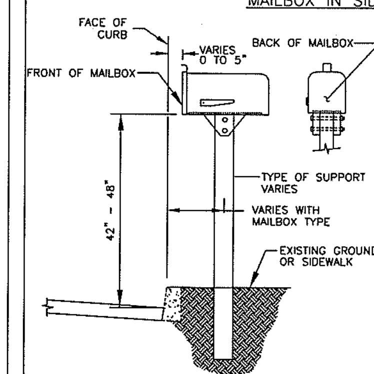
TRUNCATED DOME DETECTABLE WARNING PATTERN — STANDARD F10
APPROVED
COUNTY ENGINEER — 01/01/04





NOTES:

1. SEE CURRENT WSDOT STANDARD PLAN No. H-12 FOR MAILBOX, POST, BRACKET AND OTHER INSTALLATION DETAILS.
2. MAILBOXES MUST BE POSTMASTER APPROVED. CONTACT MIKE WENTZEL (MAINTENANCE MANAGER) AT 992-5052.
3. LOCATION OF MAILBOXES ARE SUBJECT TO APPROVAL BY COUNTY ENGINEERING FOR ACCESS AND SIGHT DISTANCE REQUIREMENTS. CONTACT ENGINEERING SERVICES AT 397-2375 ext. 4997
4. INSTALL EXPANSION JOINT MATERIAL AROUND MAILBOX POST WHEN SET IN SIDEWALK.
5. EXTEND SIDEWALK JOINTS THROUGH WIDENED SIDEWALK SECTION.
6. COLLECTION BOX UNITS (CBU) AND CONCRETE BASE ARE INSTALLED BY THE U.S. POSTAL SERVICE. SEE NOTE 2 FOR CONTACT.
7. A MAILBOX TURNOUT CONFORMING TO DETAIL F13b IS REQUIRED FOR ALL STREETS EXCEPT ACCESS AND SUBCOLLECTOR STREETS WHERE THE POSTED SPEED LIMIT IS 25 MPH OR LESS.

WSDOT STD. PLANS WEB SITE ADDRESS:
http://www.wsdot.wa.gov/eesc/design/designstandords/HTM/TOC.pdf

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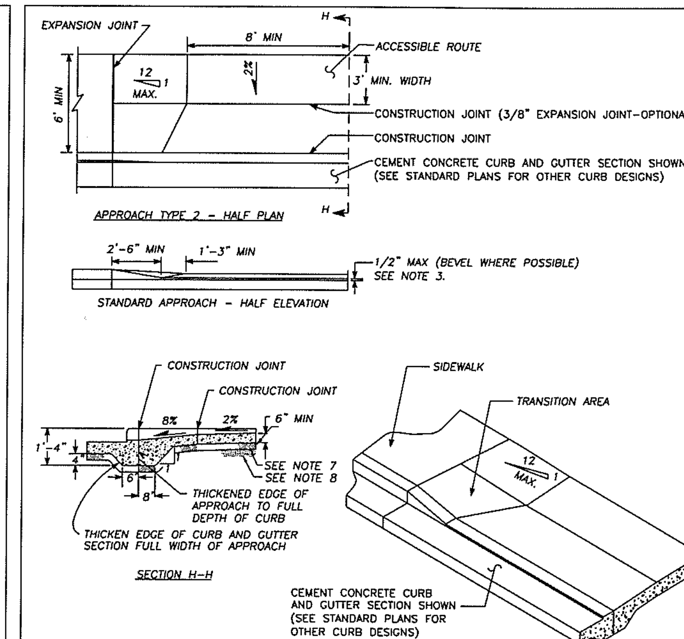
SIDEWALK MAILBOX PLACEMENT — STANDARD F13
APPROVED
COUNTY ENGINEER — 01/01/04



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 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	10/09/02	SCH

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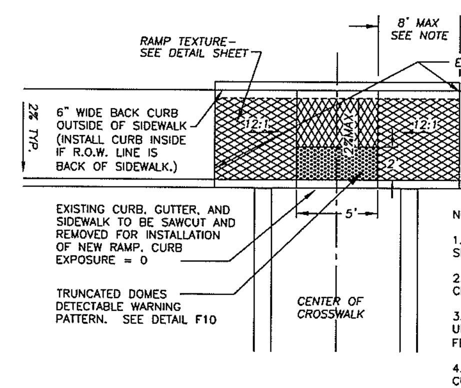
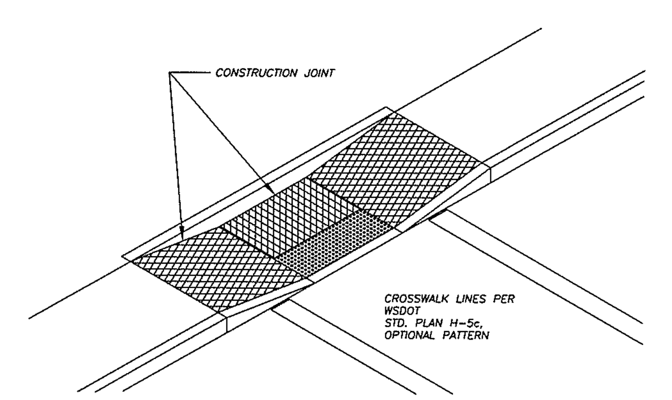
CEMENT CONCRETE APPROACH DETAIL - TYPE 2 — F15
APPROVED
COUNTY ENGINEER — 8/22/00



NOTES:

1. RAMPS TO BE POURED SEPARATELY FROM SIDEWALK.
2. RAMP TO BE CENTERED IN CROSSWALK.
3. RAMP RUNS TO BE 12:1 SLOPE UNLESS LENGTH WOULD EXCEED 8 FEET. THEN 8' LENGTH GOVERNS.
4. BACK CURB IS STANDARD BARRIER CURB.



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

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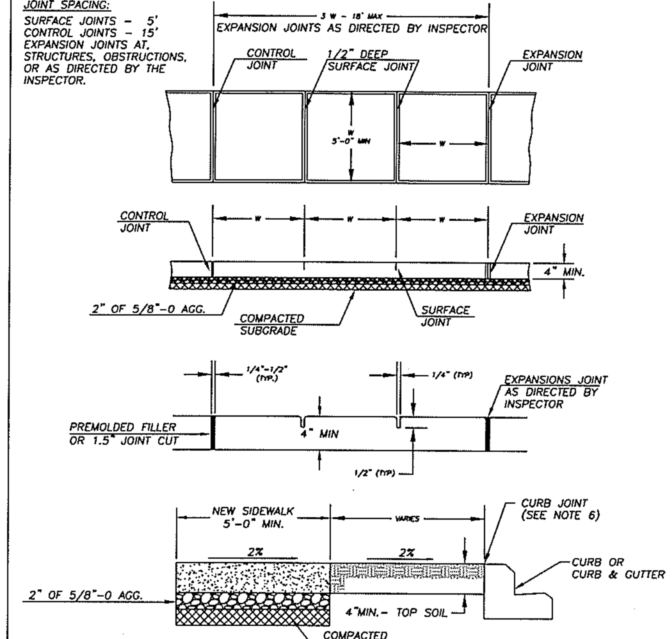
TYPE 3 RAMP — F3
APPROVED
COUNTY ENGINEER — 8/22/00

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 #	07/28/00	KB
2	BASE AGG. & NOTES	10/07/02	SCH

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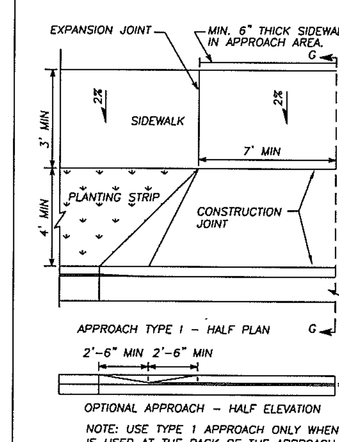
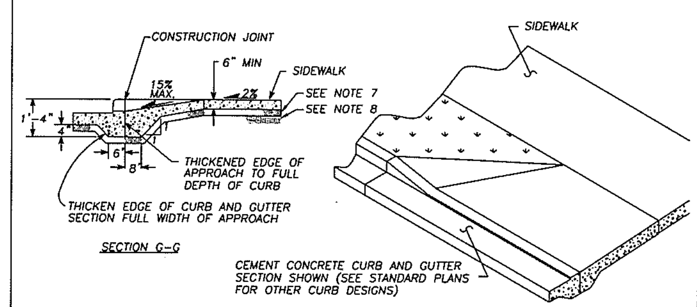
SIDEWALK DETAIL — STANDARD F12
APPROVED
COUNTY ENGINEER — 01/01/04



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).

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



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

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CLARK COUNTY WASHINGTON
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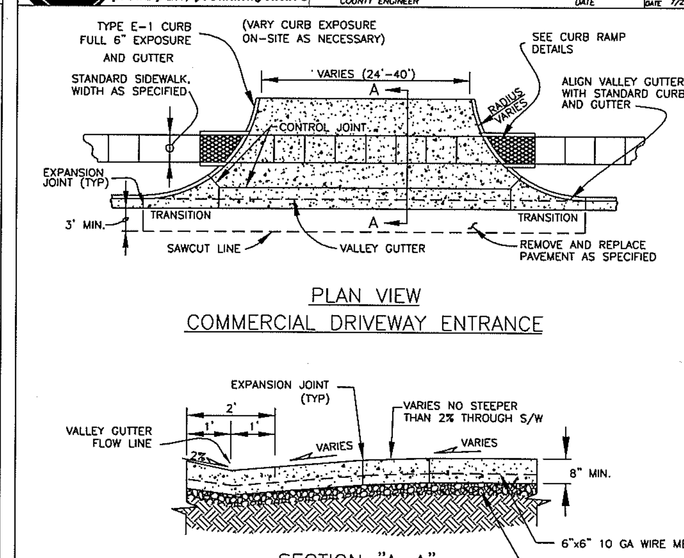
DETAIL - TYPE 1 CEMENT CONCRETE APPROACH — F14
APPROVED
COUNTY ENGINEER — 8/22/00



NOTES:

1. CONCRETE SHALL BE 3300 PSI (MIN. BREAKING STRENGTH @ 28 DAYS) WITH 3" SLUMP (±1"). TOTAL AIR CONTENT (% BY VOLUME OF CONCRETE) SHALL NOT BE LESS THAN 4% OR MORE THAN 7%. MEDIUM BROOM FINISH PARALLEL TO DRIVEWAY CENTERLINE.
2. ALL JOINTS SHALL BE FINISHED WITH 1/4" RADIUS EDGE UNLESS OTHERWISE NOTED.
3. DRIVEWAYS EXCEEDING 15' IN TOTAL WIDTH SHALL HAVE ADDITIONAL LONGITUDINAL JOINTS AS DIRECTED. CONTROL JOINT SPACING SHALL NOT EXCEED 15'.
4. DRIVEWAY SHALL BE CONSTRUCTED WITH REINFORCING STEEL (6x6 10 GA WIRE MESH), MIN. 3" COVER.
5. ALL EXISTING EDGES SHALL BE SAW CUT.
6. 3" DEPTH 5/8"-0 CRUSHED AGGREGATE BASE COMPACTED TO 95% OF MAX. DRY DENSITY.
7. SUBGRADE PREPARATION PER WSDOT STD. SPEC. 2-06.3(1).
8. EXISTING CURB SHALL BE REMOVED TO EXISTING JOINT OR SAWCUT SUCH THAT 3' MIN. OF NEW STREET SECTION IS CONSTRUCTED ADJACENT TO NEW DRIVEWAY.
9. MAXIMUM 2% CROSS SLOPE ACROSS PEDESTRIAN CROSSING.
10. CURB RADIUS PER TABLES 40.350.030-2 THRU 6, OR AS APPROVED BY COUNTY ENGINEER.

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MAJOR COMMERCIAL CONCRETE APPROACH — F17
APPROVED
COUNTY ENGINEER — 01/01/04

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	RD1
SHEET	X OF 61

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EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
ROADWAY DETAILS

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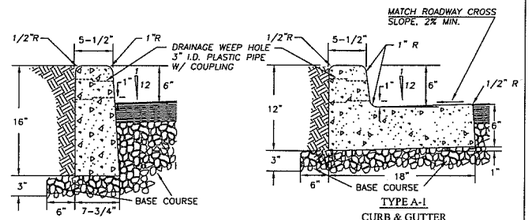

TYPE E-1 CURB

SEE WDOT STANDARD PLAN No. F-1

TYPE A-1 CURB & GUTTER

SEE WDOT STANDARD PLAN No. F-1

NOTES

1. CONCRETE SHALL BE 3000 PSI MIN. (CLASS 3000) 3 1/2" SLUMP (MAX.)
2. CURBS ADJACENT TO PAVEMENT OR SIDEWALK TO HAVE EXPANSION AND/OR CONTRACTION JOINTS TO MATCH EXISTING PATTERNS.
3. 3/8" EXPANSION JOINTS TO BE PROVIDED AT EACH POINT OF TANGENCY OF THE CURB, COLD JOINTS, EACH SIDE OF INLET STRUCTURES AND DRIVEWAYS. MATERIAL TO BE PRE-MOLDED, ASPHALT IMPREGNATED AND NON EXTRUDING.
4. CONTRACTION JOINT SPACING NOT TO EXCEED 15 FEET. THE DEPTH OF THE JOINT SHALL BE AT LEAST 1-1/2 INCHES. WEEP HOLES TO BE CENTERED WITH CONTRACTION JOINTS.
5. BASE COURSE SHALL BE TO SUBGRADE OF STREET SECTION OR 3 INCHES, WHICHEVER IS GREATER, AND SHALL EXTEND 6" BEHIND THE CURB.
6. DRAINAGE WEEP HOLES TO BE 3" I.D. PLASTIC PIPE WITH COUPLING. FINISH PIPE END FLUSH WITH FACE OF CURB.
7. GROUT ANY VOIDS IN CONCRETE SURROUNDING PIPE.
8. DRAINAGE ACCESS THROUGH EXISTING CURBS SHALL BE CORE DRILLED.
9. CURB TO BE BRUSH FINISHED. ALL EXISTING EDGES SHALL BE SAWCUT.
10. ALL MATERIALS AND WORKMANSHIP FOR TYPE E-1 & A-1 SHALL BE IN ACCORDANCE WITH WDOT STANDARD PLAN No. F-1, APPROVED 7/18/97 OR MOST CURRENT REVISION.

NO.	REVISIONS	DATE	BY

DWG: F18.DWG

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CLARK COUNTY WASHINGTON
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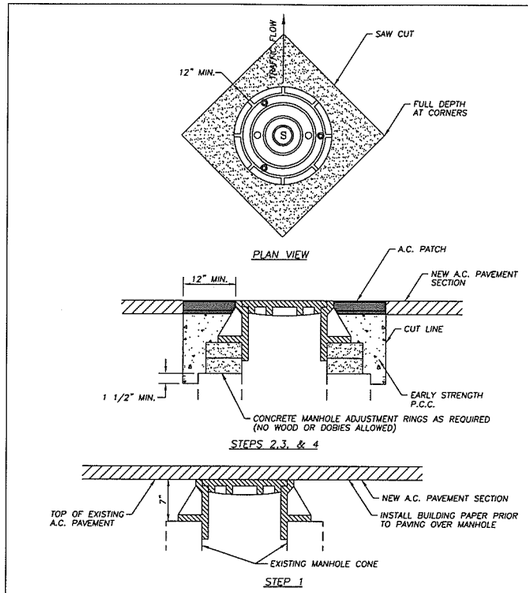
CONCRETE CURBS

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

STANDARD F18
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/24/03



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:

Department of Public Works
CLARK COUNTY WASHINGTON
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APPROVED
Peter Capell
COUNTY ENGINEER — 9/12/00 DATE

F27
DESIGNED
DRAWN
DATE

OPEN CUT UTILITY TRENCH BACKFILL DETAIL (COLLECTOR OR ARTERIAL)

SURFACING:

1. All A.C.P. shall be saw cut to provide a straight, clean edge prior to paving.
2. The cut line shall be one continuous straight line from the outer excavation limits of manhole, valve box, etc. to manhole, valve box, etc.
3. Pave with an 0.5 ft. minimum compacted depth A.C.P., or match existing or design section, whichever is greater.
4. Lifts for A.C.P. (Class A) shall be 0.15 ft. minimum and 0.35 ft. maximum for non-surface lifts (0.25' maximum for surface lift); the temperature shall be 250 degree minimum, 350 degree maximum, compacted to 92% of the theoretical maximum.
5. All joints shall be tacked, sealed and sanded.
6. Trench shall be plated until paved.
7. For longitudinal installation, full lane width including turn lanes restoration shall be required or as directed by Clark County. For transverse installation refer to surfacing restoration of detail U6. See Section 12.20A.120.C.

BASE COURSE:

1. 0.80 ft. minimum depth (1-1/4" minus) C.S.B.C. (W.S.D.O.T. approved material).
2. Compacted to 95% of maximum density. See trench zone.
3. Equivalent depth of A.T.B. may be substituted.
4. For transverse or diagonal trenches in existing roadway pavement, CDF will be used from the bottom of full pavement section to a maximum CDF section of 3 feet or to 6" above the top of the pipe, which ever is less. See note 13 of Std. Plan UGN of this Manual.

TRENCH ZONE:

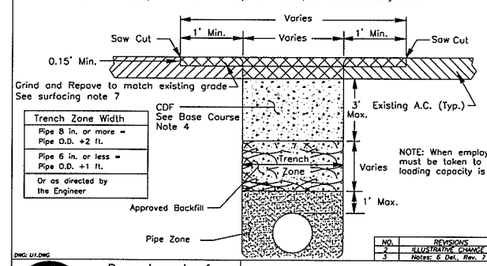
1. Granular backfill as approved by local agency or W.S.D.O.T. specifications for granular backfill. Compacted to 95% of maximum density in the trench zone using Method C compaction as per Section 2-03.3(14)C.
2. Native material may be used if approved prior to construction by Clark County.
3. Trench zone width -- see below.

PIPE ZONE:

1. Pipe zone material as specified by utility owner, and shall conform to section 9-03.12(3) WSDOT Specs.
2. 1.0 ft. max. from top of the pipe. 6" from top of pipe when CDF backfill used.

CONDITIONS:

1. A copy of the permit and requirements shall be on the job site at all times.
2. The permit holder shall be responsible for all restoration and maintenance of ditches, shoulders, driveways, landscaping, etc.
3. Call Clark County at 397-2446 twenty-four hours prior to commencing work.



Trench Zone Width
Pipe 8 in. or more = Pipe O.D. +2 ft.
Pipe 6 in. or less = Pipe O.D. +1 ft.
Or as directed by the Engineer

NOTE: When employing CDF, care must be taken to assure pipe loading capacity is not exceeded.

NO.	REVISIONS	DATE	BY
2	ILLUSTRATIVE CHANGE	02/19/03	BK
3	Notes: E Del. Rev. 7	12/07/05	SCH

DWG: U1.DWG

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OPEN CUT UTILITY TRENCH BACKFILL DETAIL
COLLECTOR OR ARTERIAL ROADWAY

APPROVED
Peter Capell
COUNTY ENGINEER — 7/20/01 DATE

STANDARD U1
PLAN No.
DESIGNED
DRAWN
DATE 04/25/03

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	RD2
SHEET	X OF 61

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EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
ROADWAY DETAILS

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WASHINGTON

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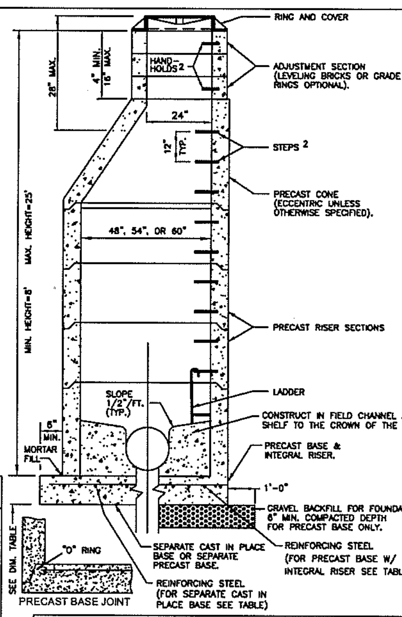

NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON 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. NON-REINFORCED 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 WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN 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 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.
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 SQ IN/FT EACH DIRECTION INTEGRAL BASE	SEPARATE BASE
48"	4"	6"	36"	8"	0.15	0.23
54"	4.5"	8"	42"	8"	0.19	0.19
60"	5"	8"	48"	8"	0.25	0.25

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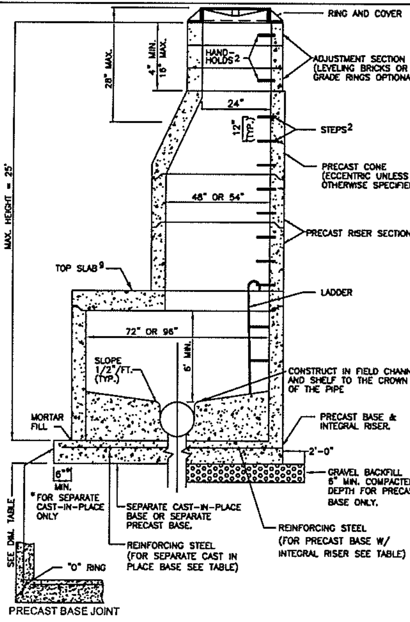
STANDARD MANHOLE TYPE 1
48", 54", & 60"
APPROVED
COUNTY ENGINEER — DATE 01/01/04
STANDARD D1.1 PLAN No.
DWG: D1-1.DWG



NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON 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. NON-REINFORCED 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 WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN 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 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.
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 SQ IN/FT EACH DIRECTION INTEGRAL BASE	SEPARATE BASE
72"	6"	8"	60"	12"	0.24	0.35
96"	8"	12"	84"	12"	0.29	0.39

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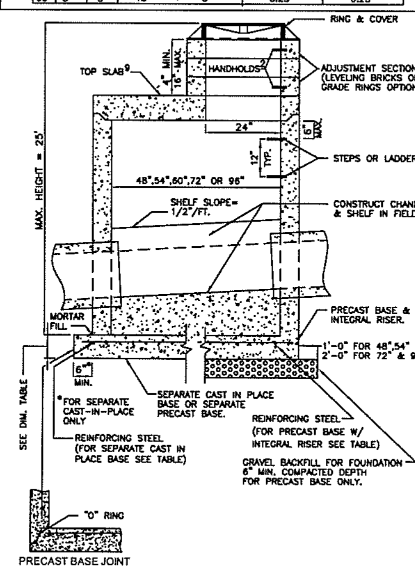
MANHOLE TYPE 2
72" & 96"
APPROVED
COUNTY ENGINEER — DATE 01/01/04
STANDARD D1.2 PLAN No.
DWG: D1-2.DWG



NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199 UNLESS OTHERWISE SHOWN ON 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 D1.5, "MANHOLE DETAILS." HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND THE TOP OF THE MANHOLE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
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 WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN 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 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.
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 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 SQ IN/FT EACH DIRECTION INTEGRAL BASE	SEPARATE BASE
48"	4"	6"	36"	8"	0.15	0.23
54"	4.5"	8"	42"	8"	0.19	0.19
60"	5"	8"	48"	8"	0.25	0.25
72"	6"	8"	60"	12"	0.24	0.35
96"	8"	12"	84"	12"	0.29	0.39

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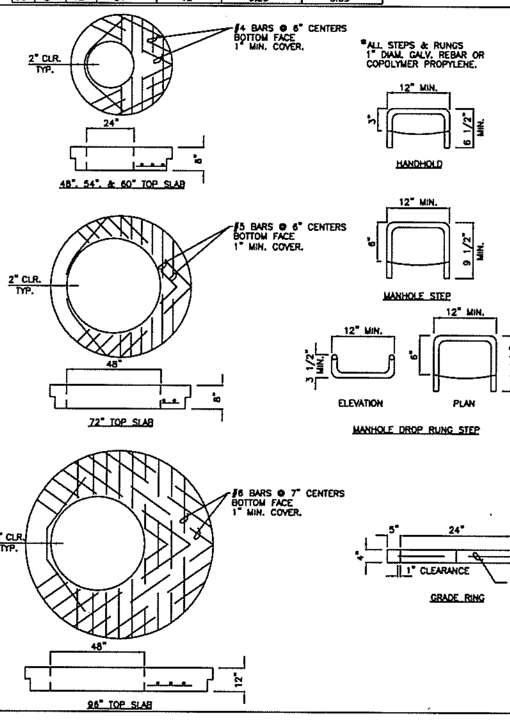
MANHOLE TYPE 3
48", 54", 60", 72", & 96"
APPROVED
COUNTY ENGINEER — DATE 01/01/04
STANDARD D1.3 PLAN No.
DWG: D1-3.DWG



NOTES:

1. PROPRIETARY MANHOLE HANDHOLDS AND STEPS ARE ACCEPTABLE, PROVIDED THAT THEY CONFORM TO SEC. R, ASTM C478, AASHTO M199 AND MEET ALL WISHA REQUIREMENTS.
2. MANHOLE STEP/HANDHOLD LEGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY MANHOLE SHALL BE SIMILAR. PENETRATION 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 16" OF BOTTOM OF MANHOLE.
5. HANGING LADDERS SHALL BE PERMANENTLY FASTENED AT TOP BY HANGING ON STEP 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.

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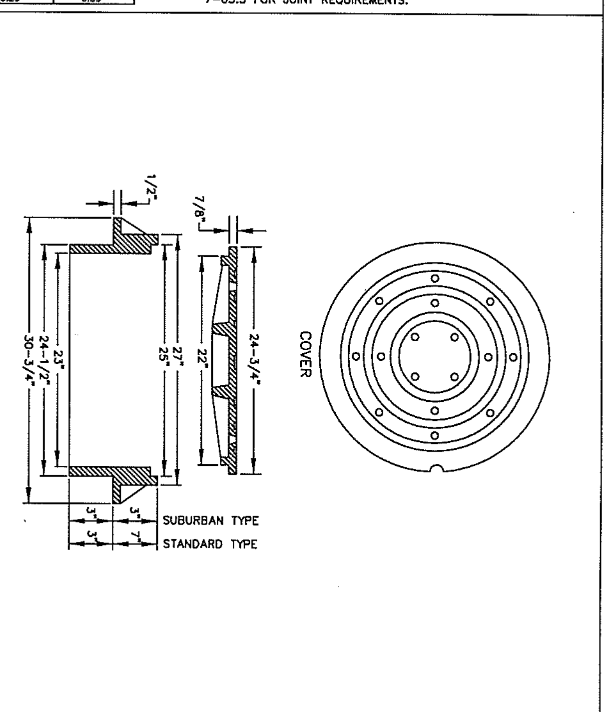
MANHOLE DETAILS
APPROVED
COUNTY ENGINEER — DATE 01/01/04
STANDARD D1.5 PLAN No.
DWG: D1-5.DWG



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.

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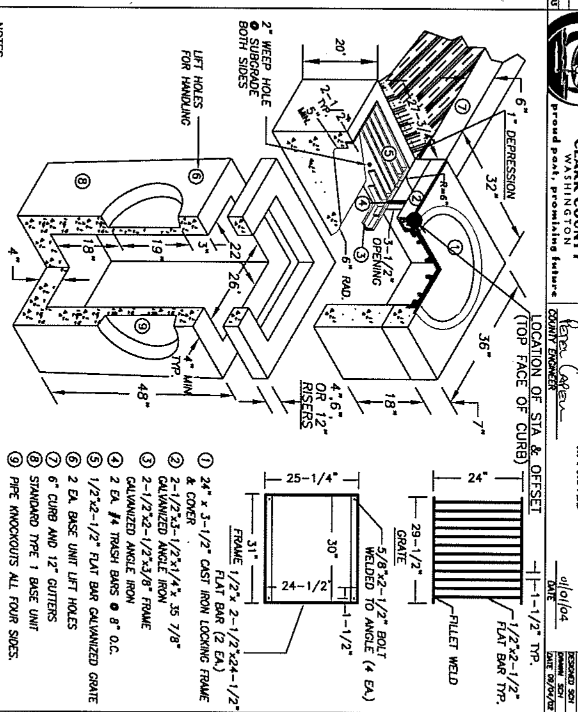
STANDARD MANHOLE FRAME AND COVER
APPROVED
COUNTY ENGINEER — DATE 01/01/04
STANDARD D1.6 PLAN No.
DWG: D1-6.DWG



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.

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STANDARD TYPE 1 COMBINATION CURB INLET
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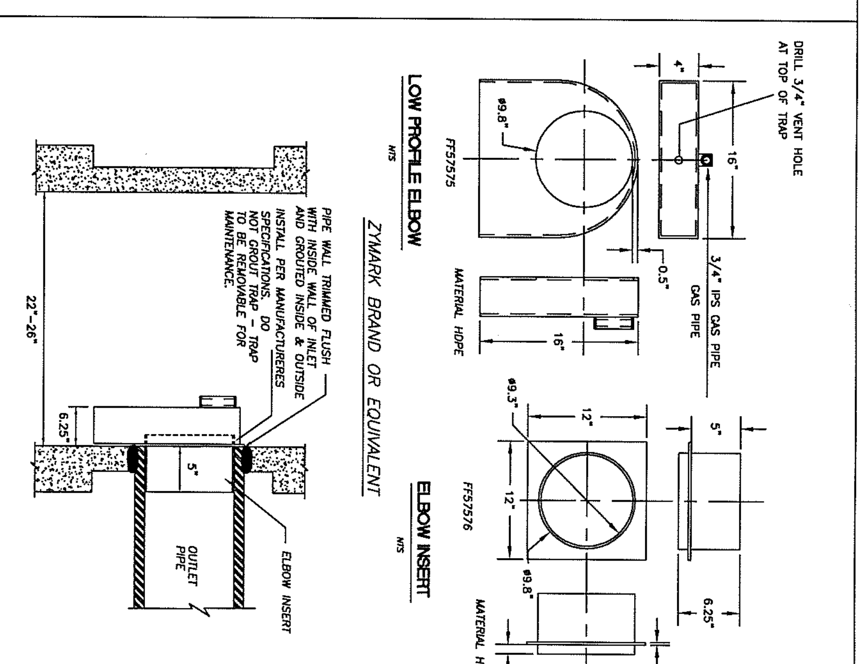
COUNTY ENGINEER — DATE 01/01/04
STANDARD D3.0 PLAN No.
DWG: D3-0.DWG



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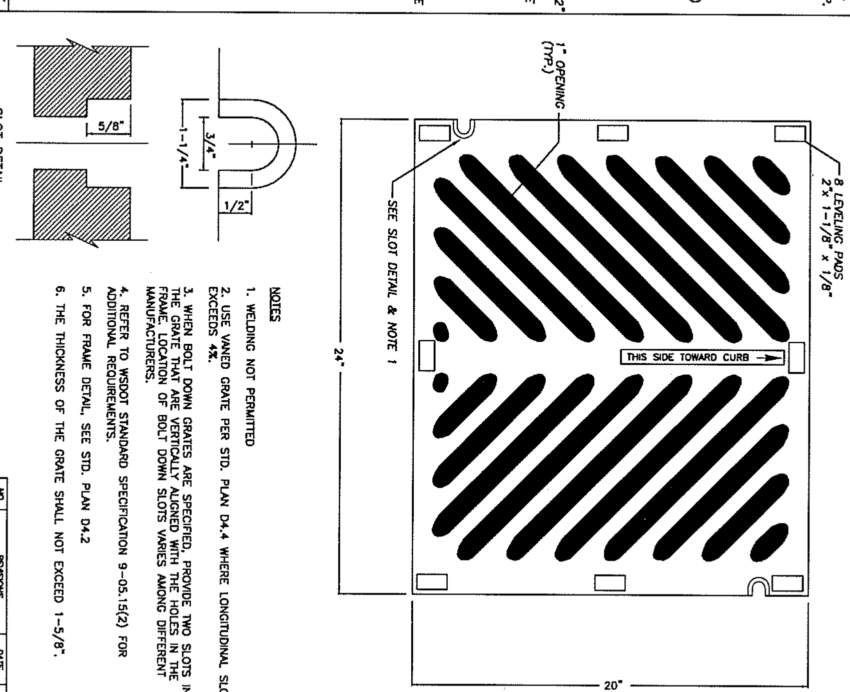
CATCH BASIN OUTLET PIPE TRAP
APPROVED
COUNTY ENGINEER — DATE 01/01/04
STANDARD D2.1 PLAN No.
DWG: D2-1.DWG



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".

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HERRINGBONE GRATE FOR CATCH BASIN
APPROVED
COUNTY ENGINEER — DATE 01/01/04
STANDARD D4.3 PLAN No.
DWG: D4-3.DWG

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ENGINEERING PROGRAM
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CRP	350822
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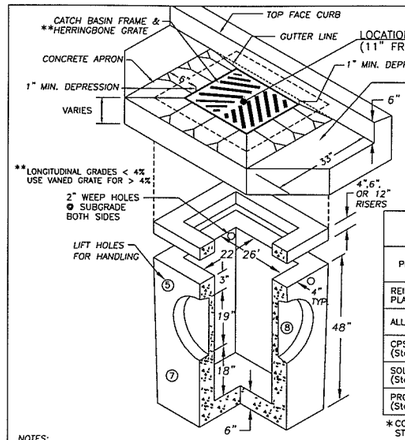
VERT.	SEE SHEET
DATE	09/15/05
DWG:	DD1
SHEET	X OF 61



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 C47B (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.

NO.	REVISIONS	DATE	BY

DWG: D4-0.DWG

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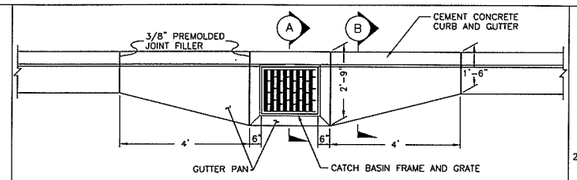
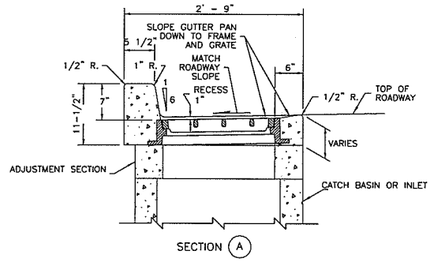
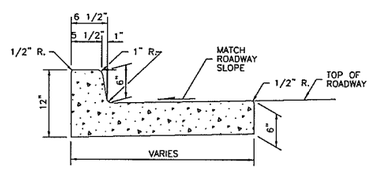
STANDARD CATCH BASIN TYPE 1
APPROVED
Peter Capen, COUNTY ENGINEER — 01/01/04 DATE
STANDARD D4.0
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03



PLAN VIEW
CATCH BASIN GUTTER PAN



SECTION (A)



SECTION (B)

NO.	REVISIONS	DATE	BY

DWG: D4-1DWG

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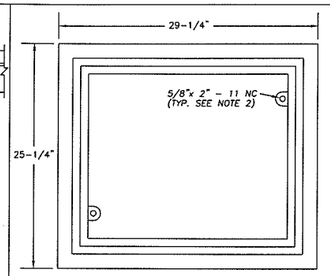
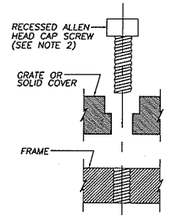
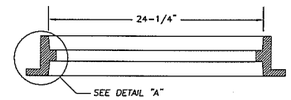
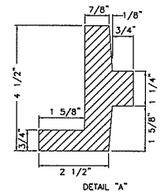
CATCH BASIN GUTTER PAN
APPROVED
Peter Capen, COUNTY ENGINEER — 01/01/04 DATE
STANDARD D4.1
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03





BOLT DOWN DETAIL





DETAIL "A"

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.

NO.	REVISIONS	DATE	BY

DWG: D4-2.dwg

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REVERSIBLE FRAME FOR CATCH BASIN
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STANDARD D4.2
PLAN No.
DESIGNED SCH
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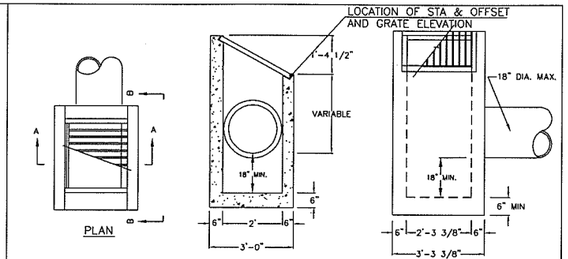

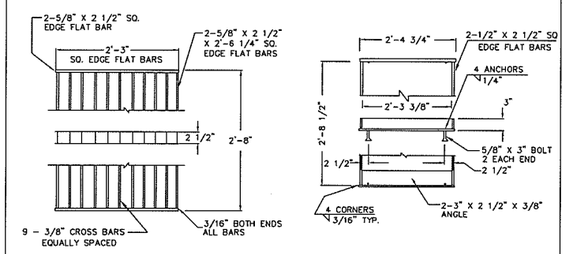

NOTES:

1. DITCH INLET CONSTRUCTION IN ACCORDANCE WITH ASTM C-47B
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.

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DITCH INLET
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STANDARD D6
PLAN No.
DESIGNED SCH
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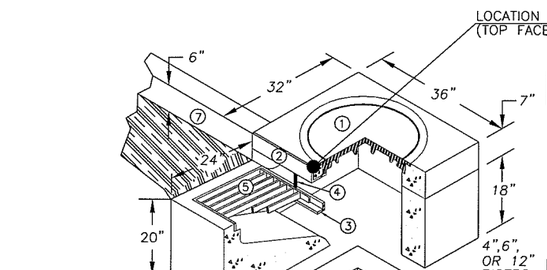


ISOMETRIC VIEW

#

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:

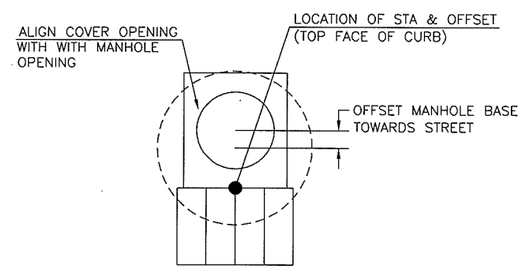
TOP WEIGHT 420 LB.

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

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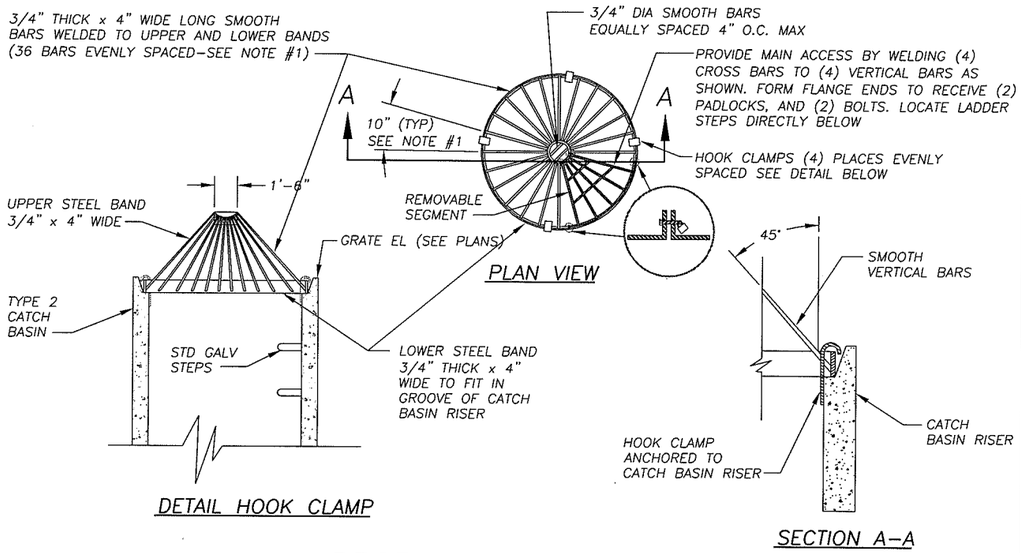
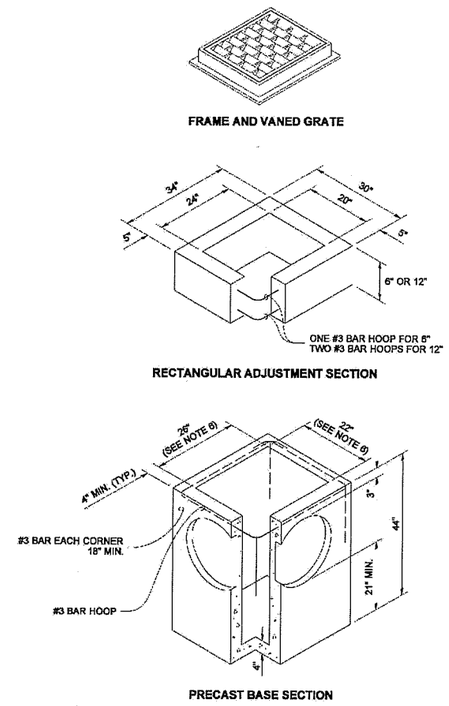


DROP INLET TRASH RACK

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. WITCZAK STATE OF WASHINGTON 10339 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 1, 2005

CATCH BASIN TYPE 1

STANDARD PLAN B-1

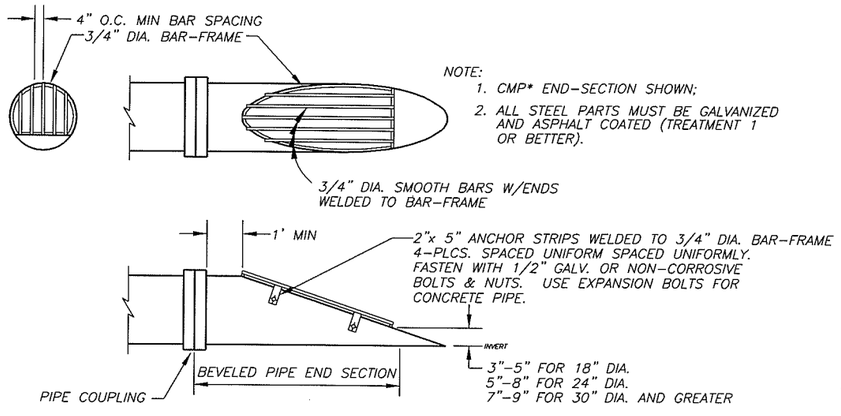
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Harold J. Peterfeso 07-21-03

STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

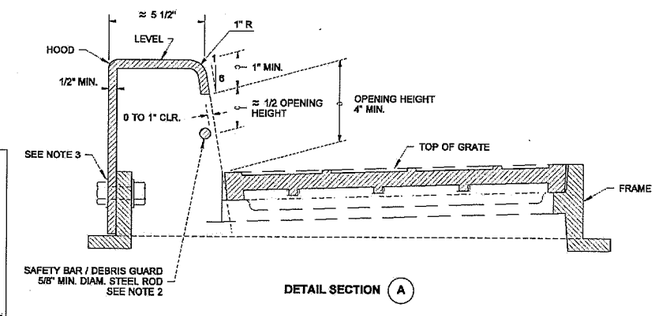


NOTE:
1. CMP* END–SECTION SHOWN;
2. ALL STEEL PARTS MUST BE GALVANIZED AND ASPHALT COATED (TREATMENT 1 OR BETTER).

DEBRIS RACK

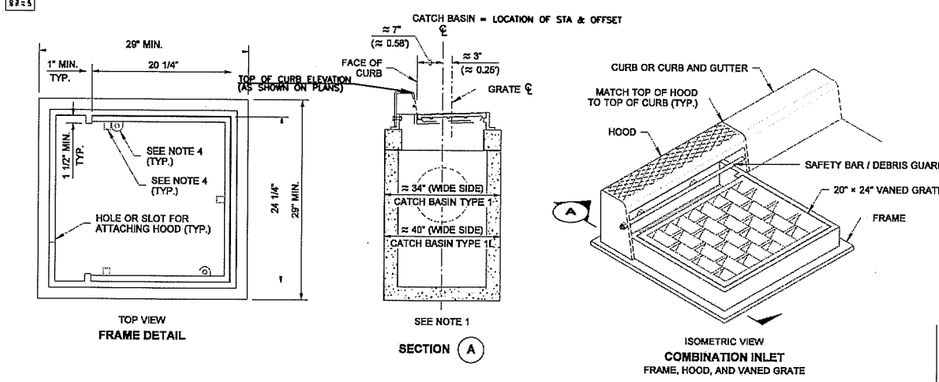
NTS

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" x 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" x - 11 NC x 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. WITCZAK STATE OF WASHINGTON 10339 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 1, 2005

COMBINATION INLET

STANDARD PLAN B-2e

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Harold J. Peterfeso 02-25-04

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Washington State Department of Transportation

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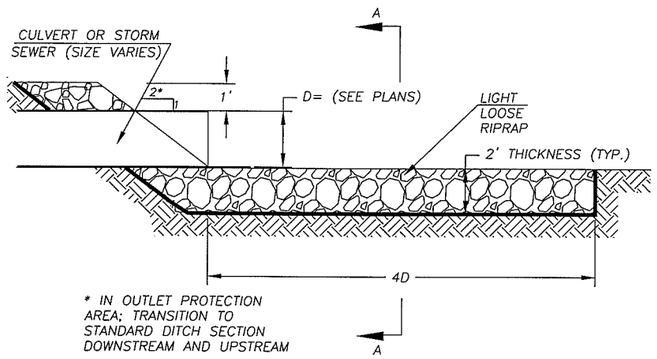
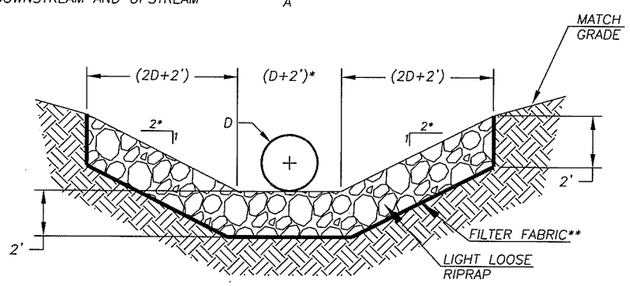


* IN OUTLET PROTECTION AREA; TRANSITION TO STANDARD DITCH SECTION DOWNSTREAM AND UPSTREAM

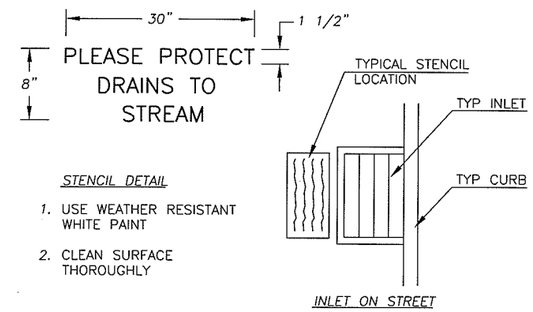


SECTION A-A

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

OUTFALL DISCHARGE PROTECTION

N.T.S.



STENCIL DETAIL

1. USE WEATHER RESISTANT WHITE PAINT
2. CLEAN SURFACE THOROUGHLY

INLET STENCIL DETAIL

NTS

PRELIMINARY

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	DD4
SHEET	X OF 61

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

STATE OF WASHINGTON MICHAEL M. EMRICK 29030 REGISTERED PROFESSIONAL ENGINEER EXPIRES: MAY 25, 2007

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
DRAINAGE DETAILS

proud past, promising future
CLARK COUNTY WASHINGTON

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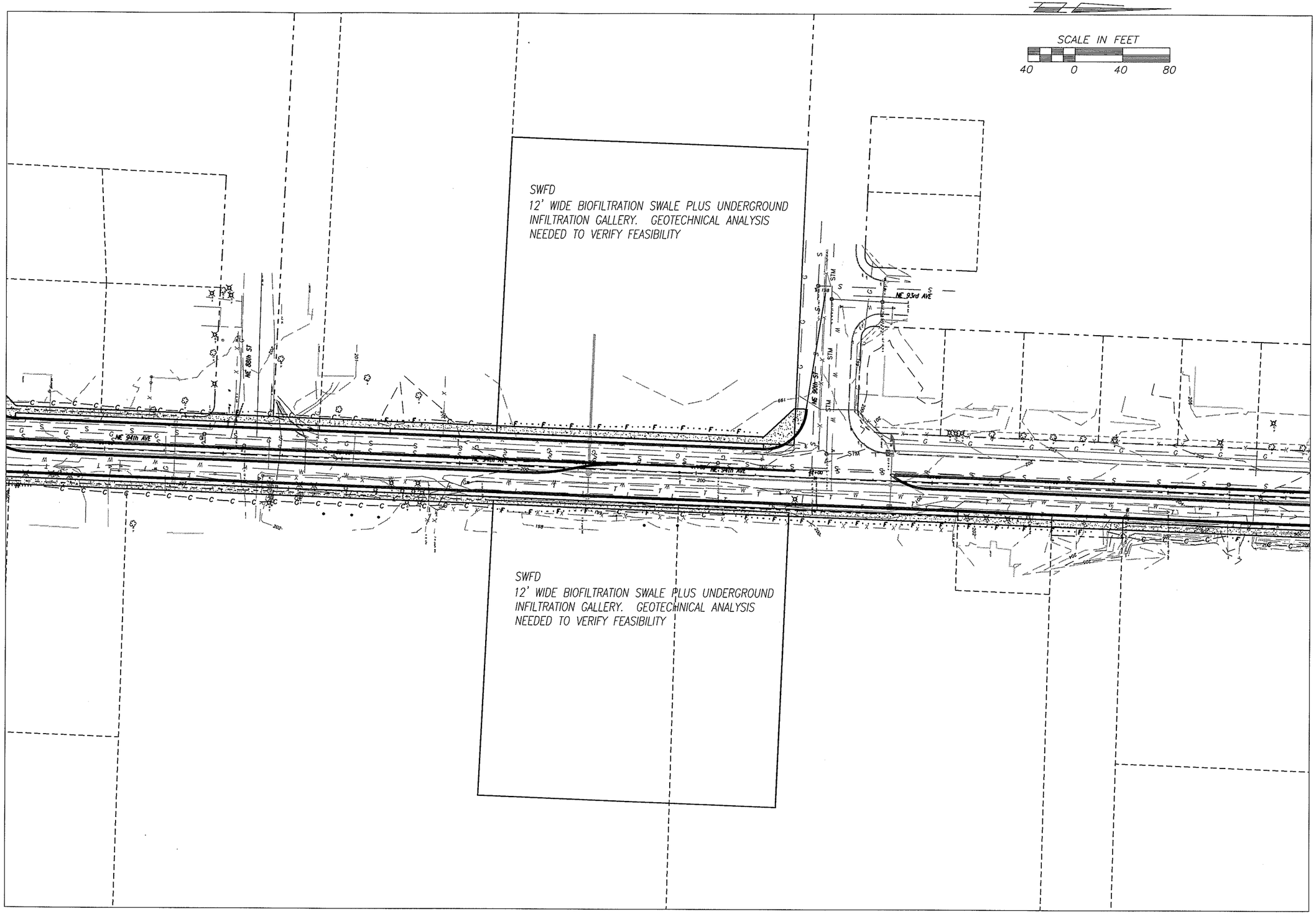

PRELIMINARY

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	SWF1
SHEET	X OF 61

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

MICHAEL M. EMDICK
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
STORMWATER FACILITY #1

proud past, promising future
CLARK COUNTY
WASHINGTON

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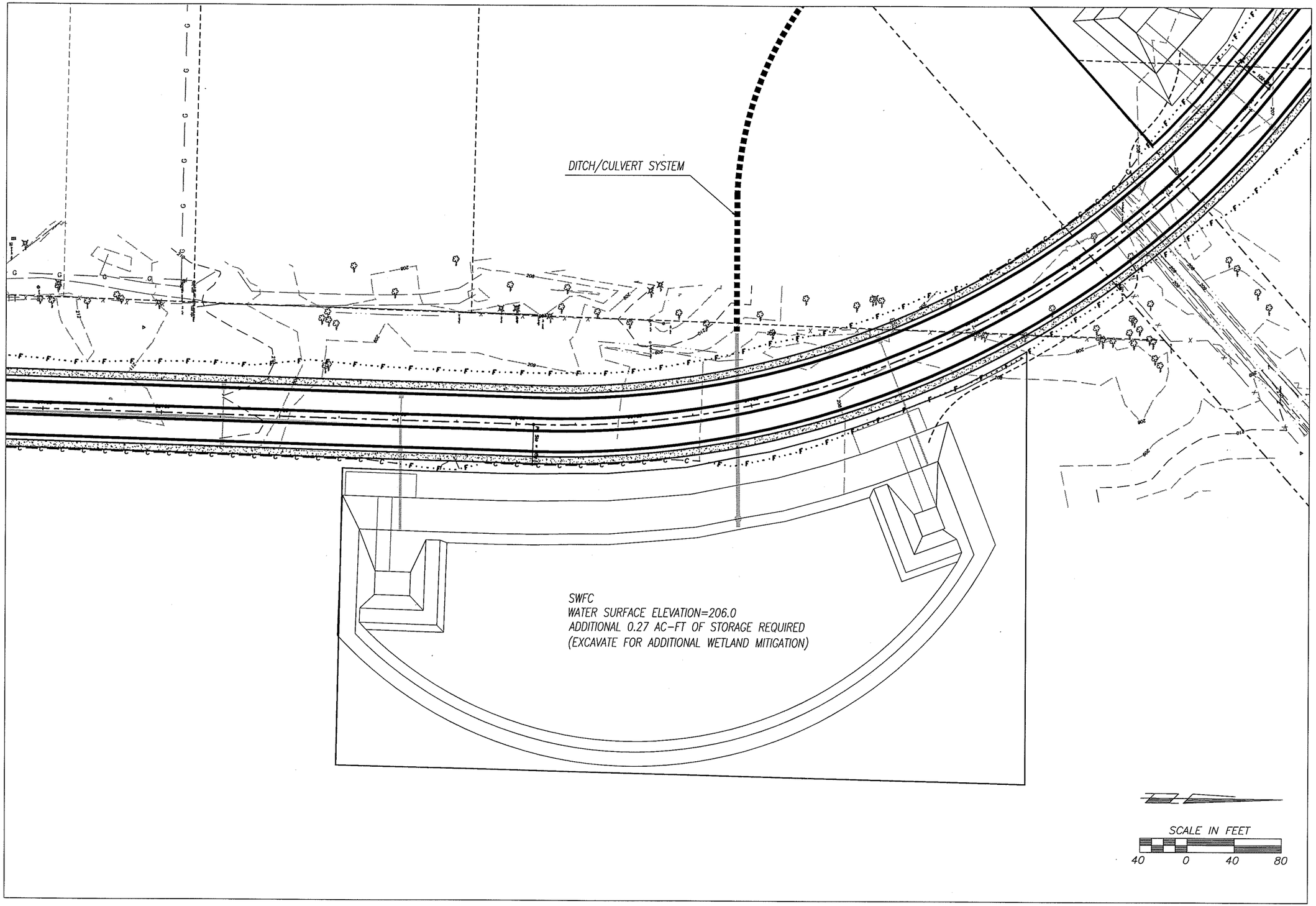

PRELIMINARY

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	SWF2
SHEET	X OF 61

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

STATE OF WASHINGTON
MICHAEL M. EMRICK
28030
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
STORMWATER FACILITY #2

proud past, promising future
CLARK COUNTY
WASHINGTON

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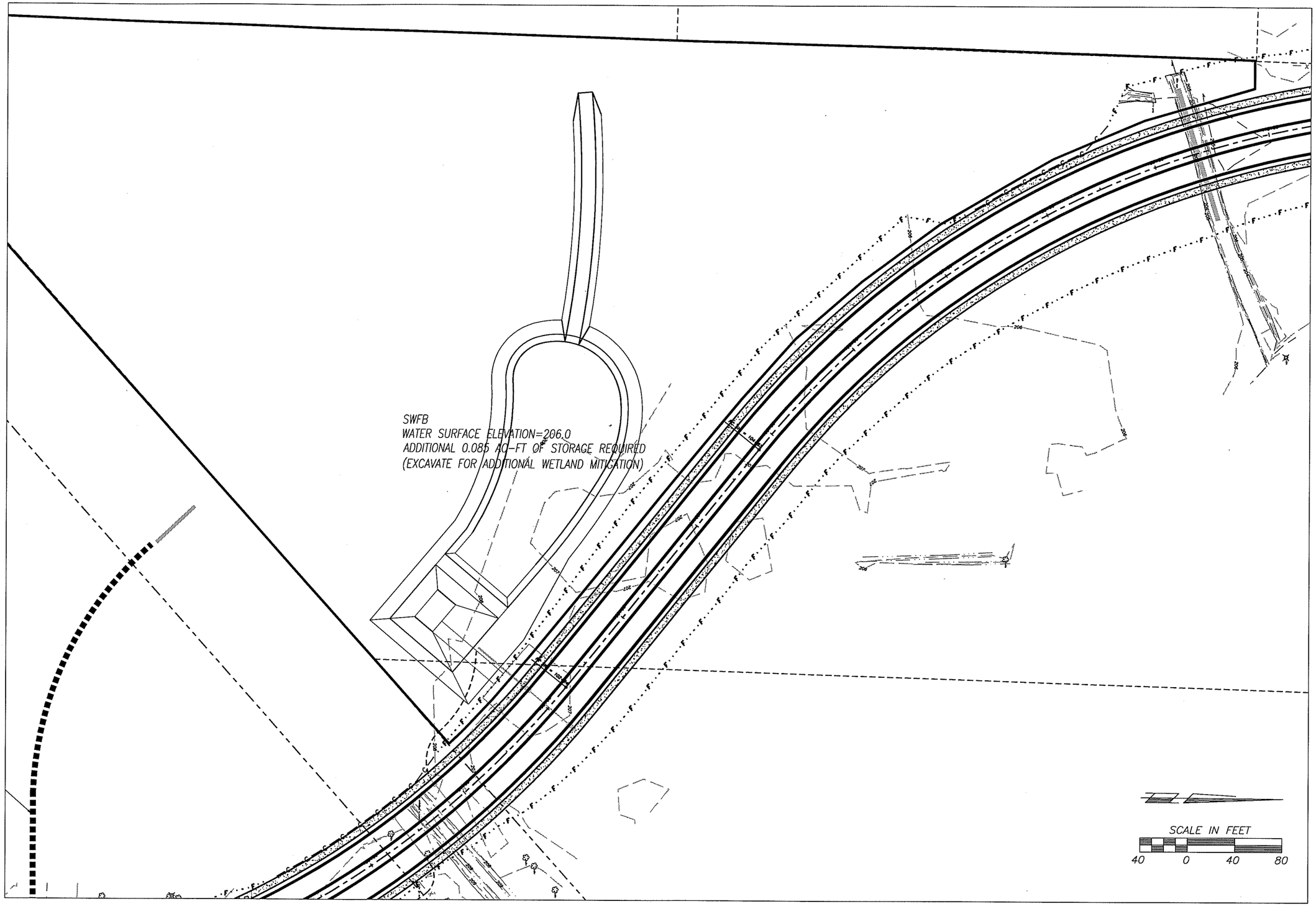

PRELIMINARY

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	SWF3
SHEET	X OF 61

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

MICHAEL M. EMRICK
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
STORMWATER FACILITY #3

proud past, promising future
CLARK COUNTY
WASHINGTON

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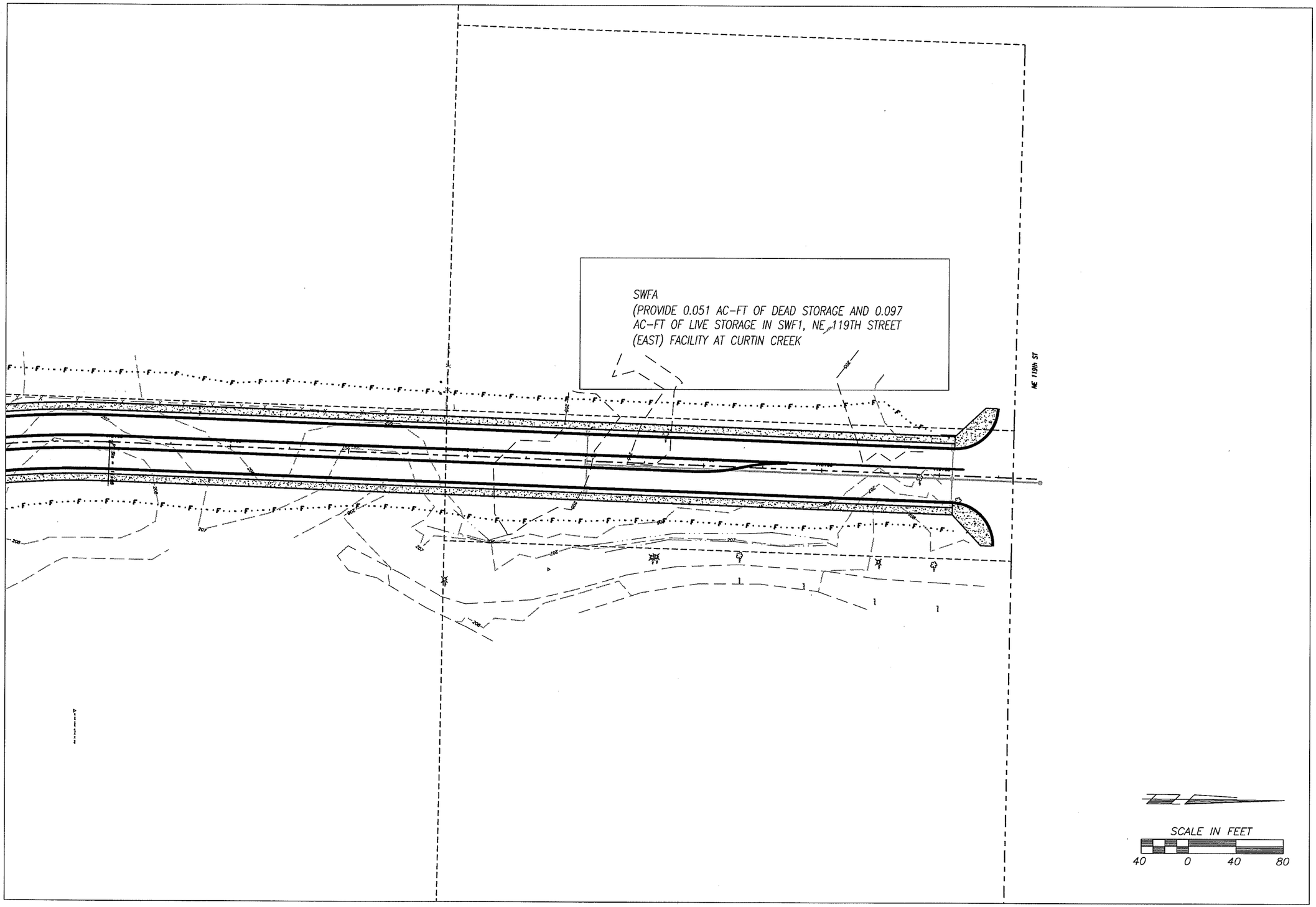

PRELIMINARY

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	SWF4
SHEET	X OF 61

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

MICHAEL M. EMERICK
STATE OF WASHINGTON
29130
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 26, 2005

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
STORMWATER FACILITY #4

proud past, promising future
CLARK COUNTY
WASHINGTON

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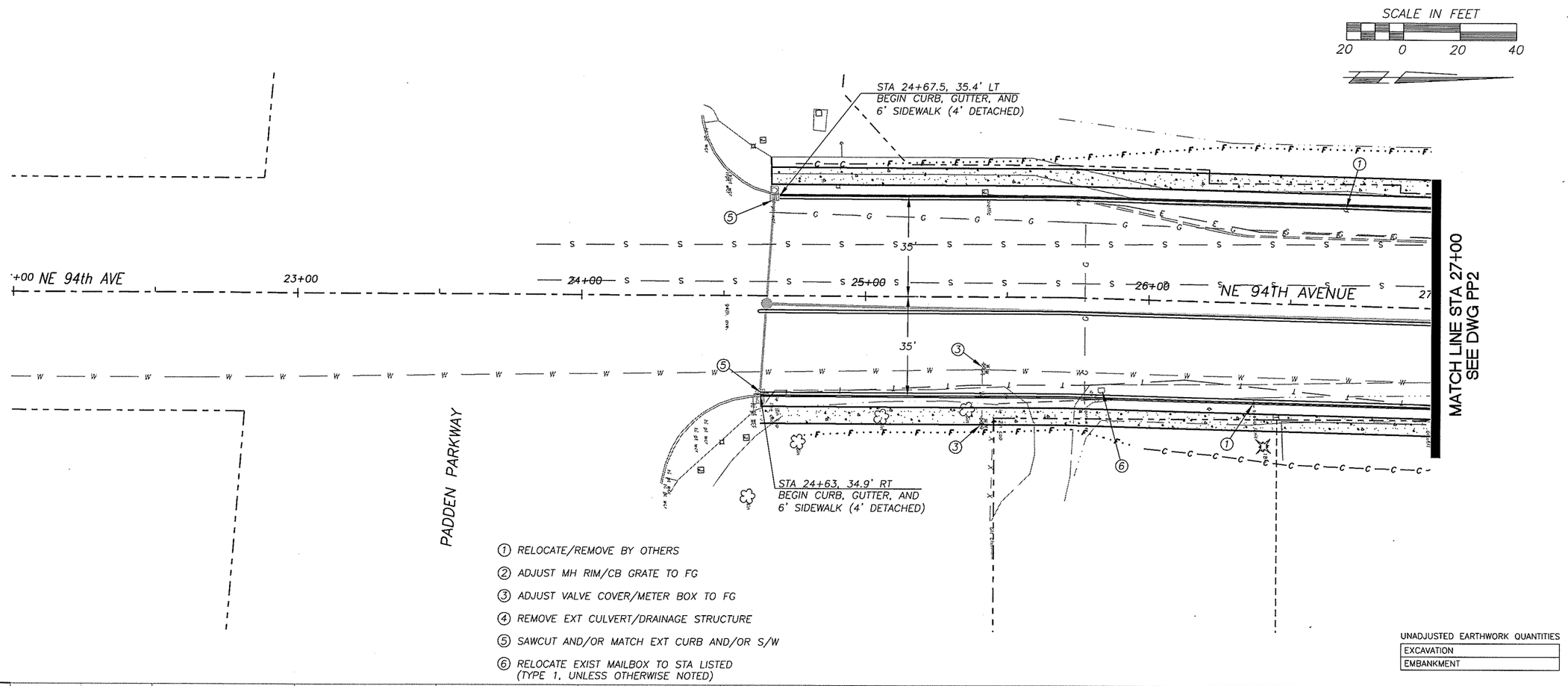
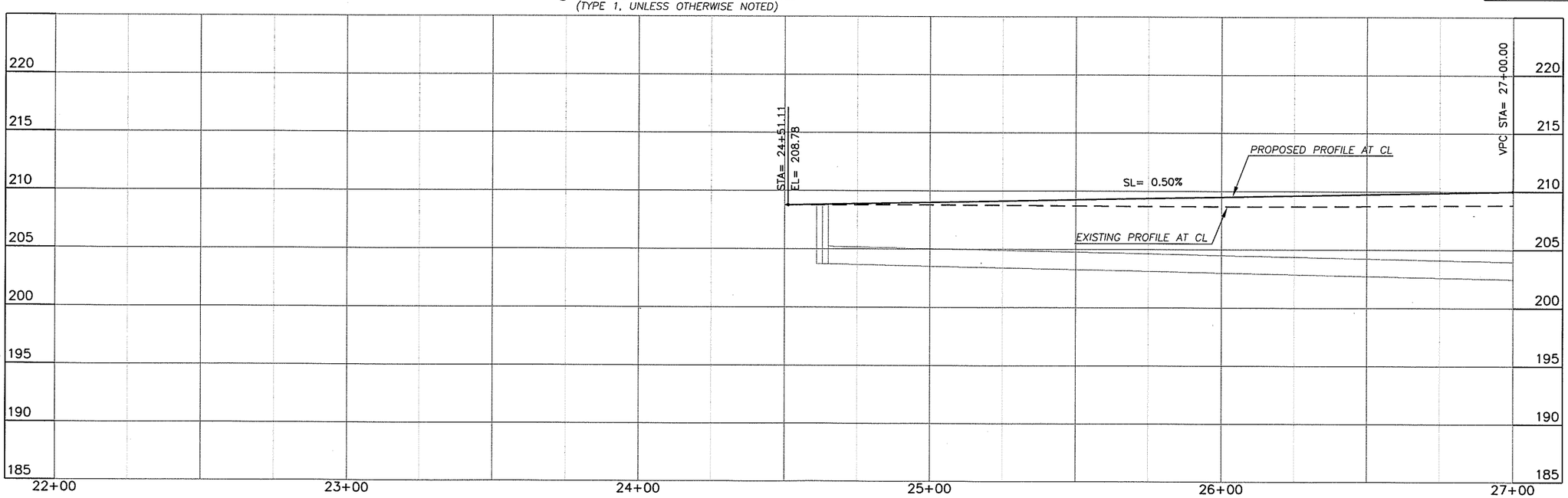


UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP1
SHEET	X OF 61

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

EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 22+00 TO STA 27+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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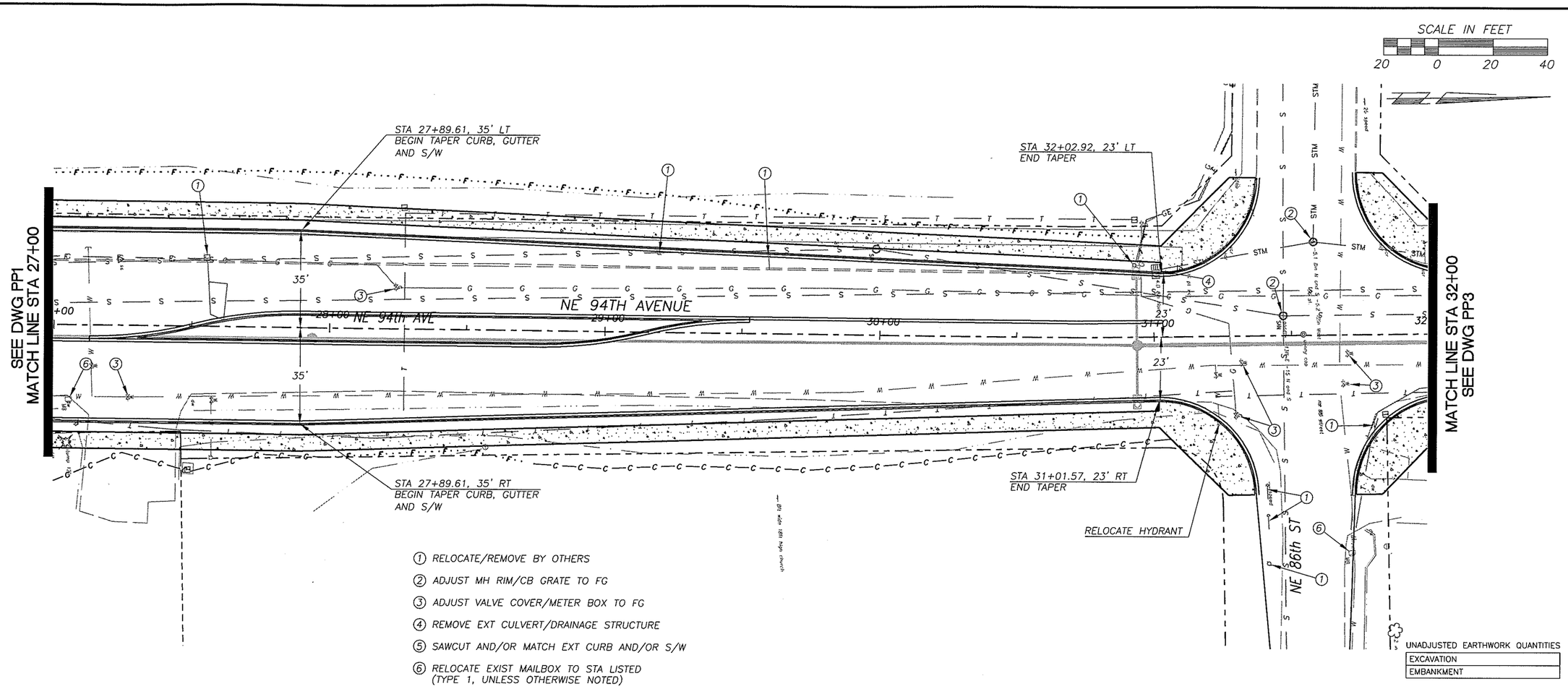
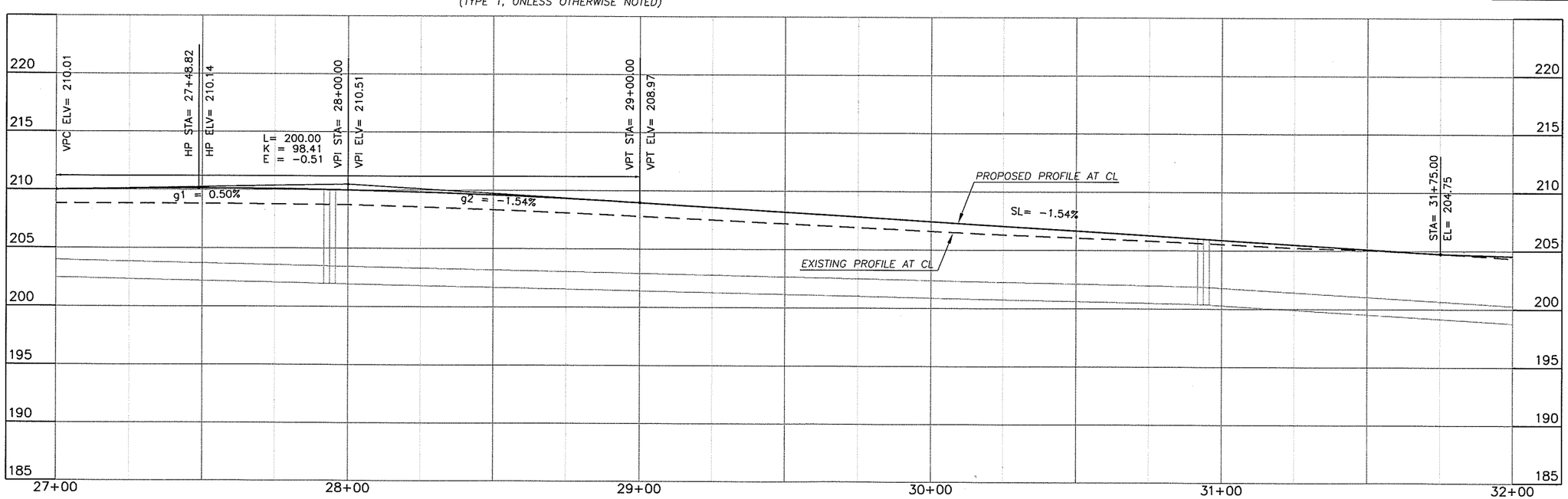


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W
6. RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP2
SHEET	X OF 61

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

STEVE A. KLUG STATE OF WASHINGTON 23868 PROFESSIONAL ENGINEER EXPIRES: APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 27+00 TO STA 32+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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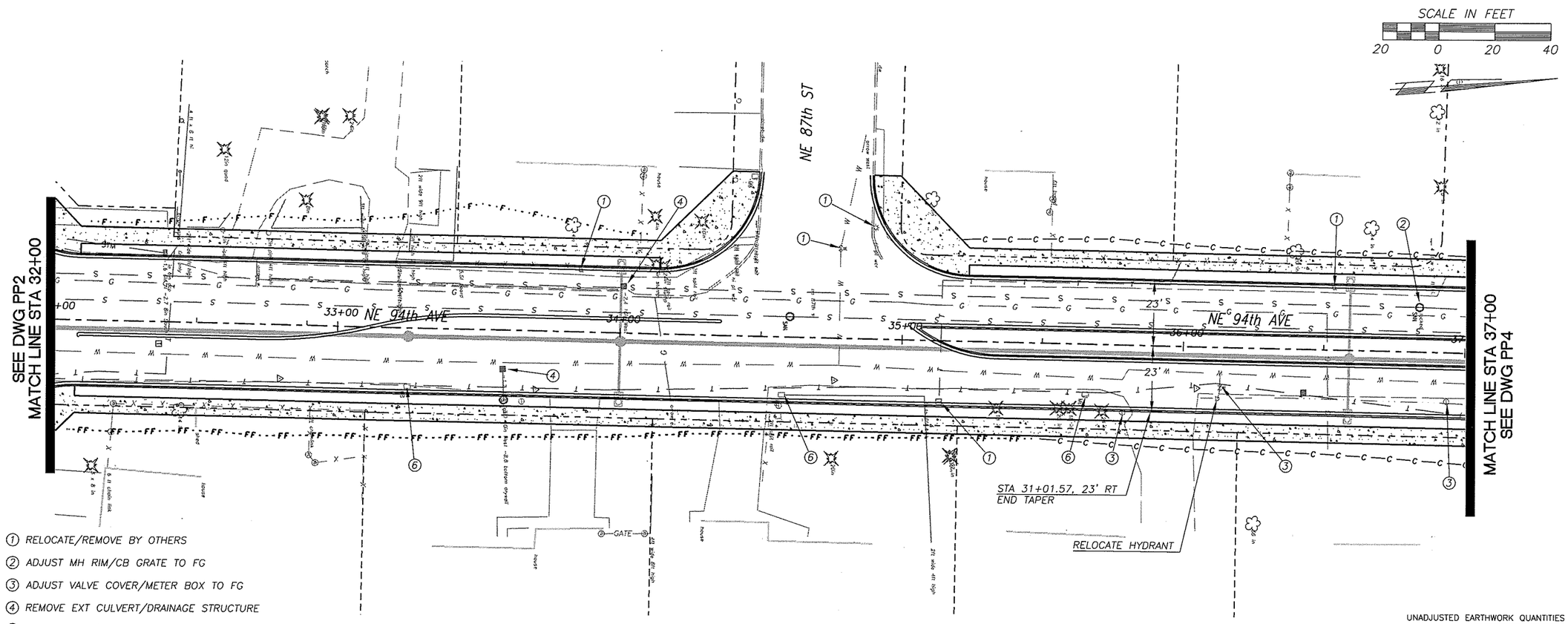


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

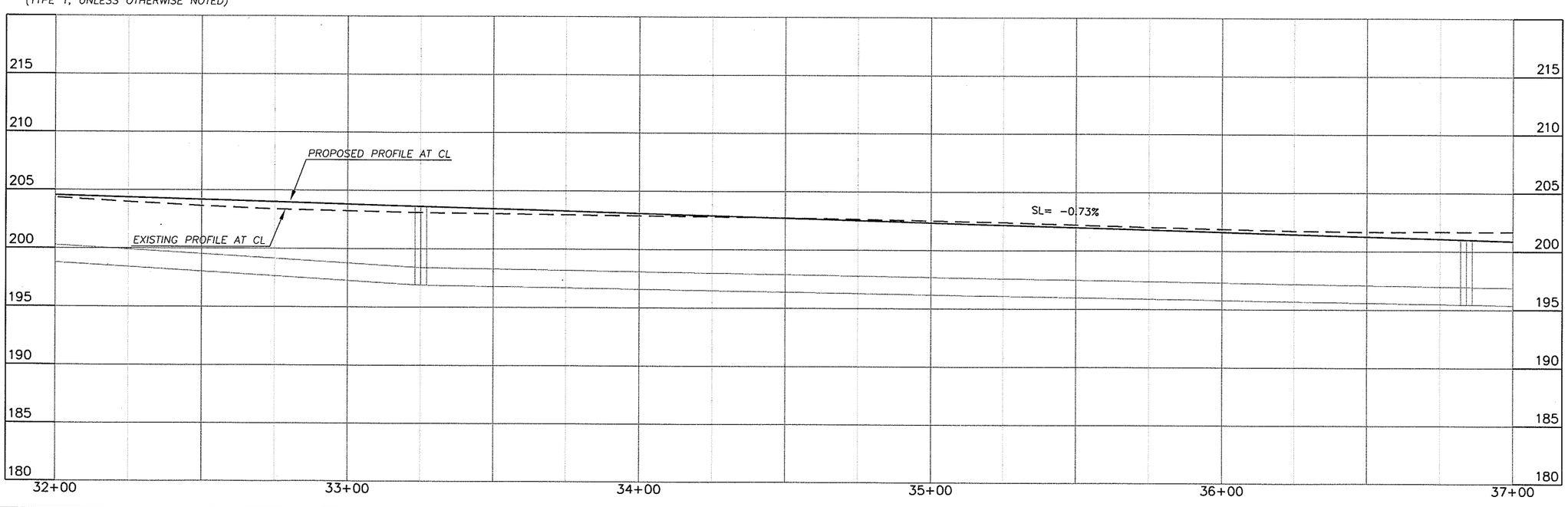
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP3
SHEET	X OF 61

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

STEPHEN A. KLIG STATE OF WASHINGTON 37889 REGISTERED PROFESSIONAL ENGINEER EXPIRES: APRIL 7, 2006

ENGINEERING PROGRAM DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 32+00 TO STA 37+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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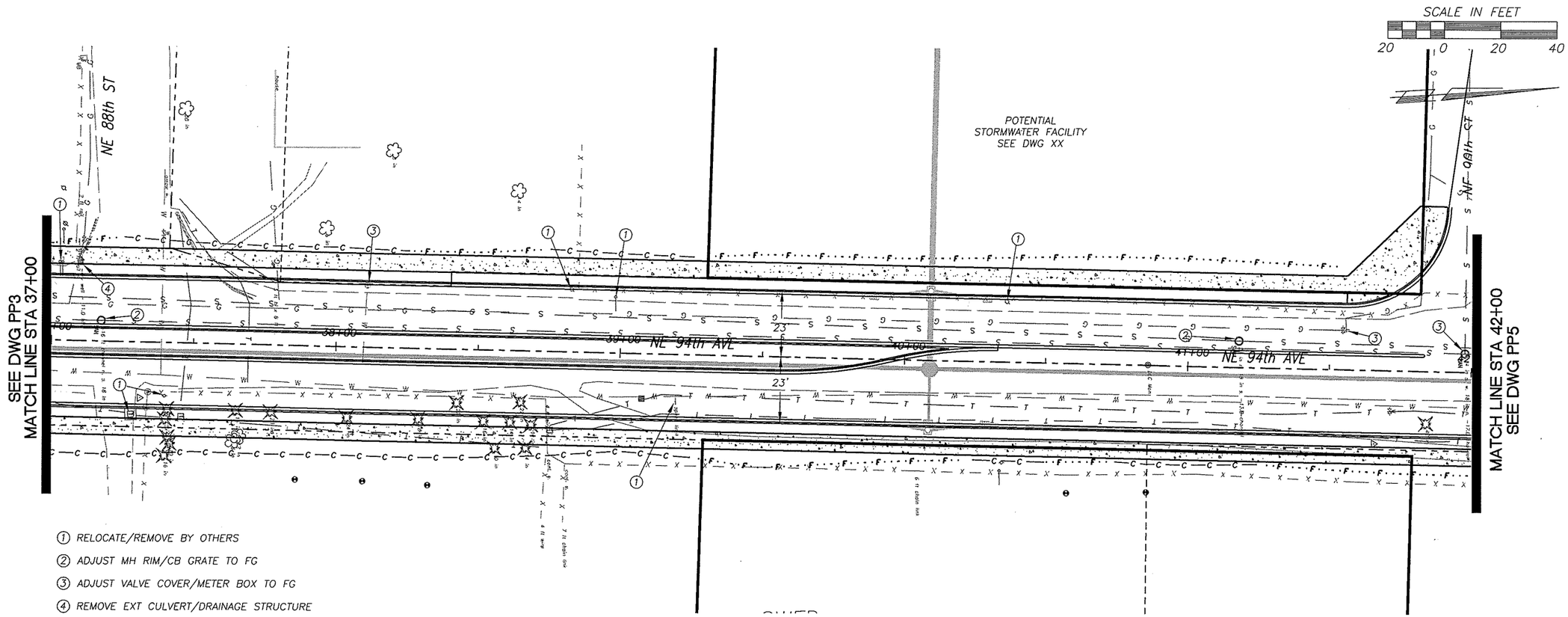
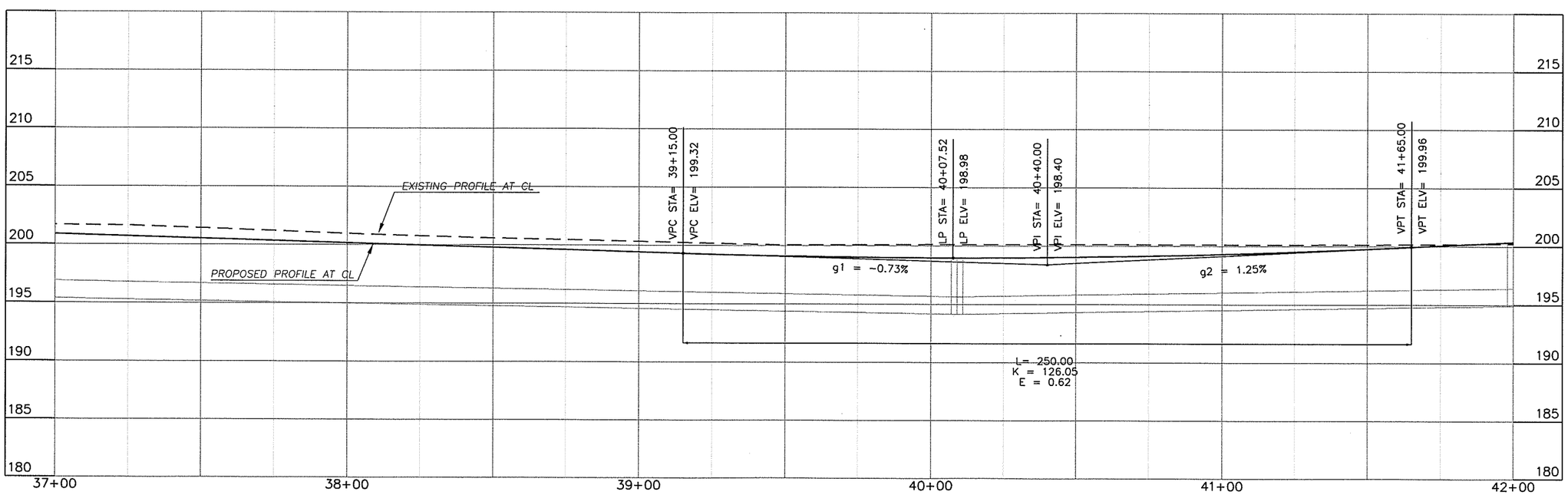


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W
6. RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG.	PP4
SHEET	X OF 61

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

EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 37+00 TO STA 42+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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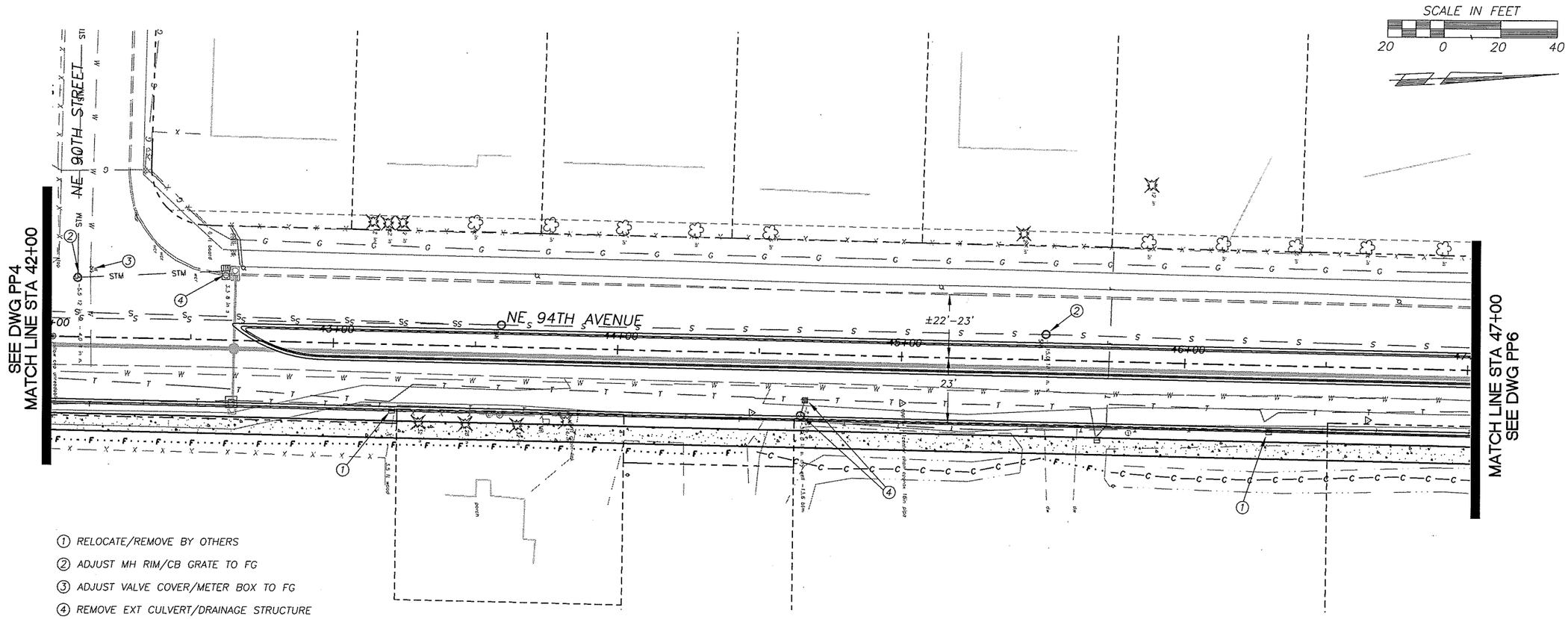


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

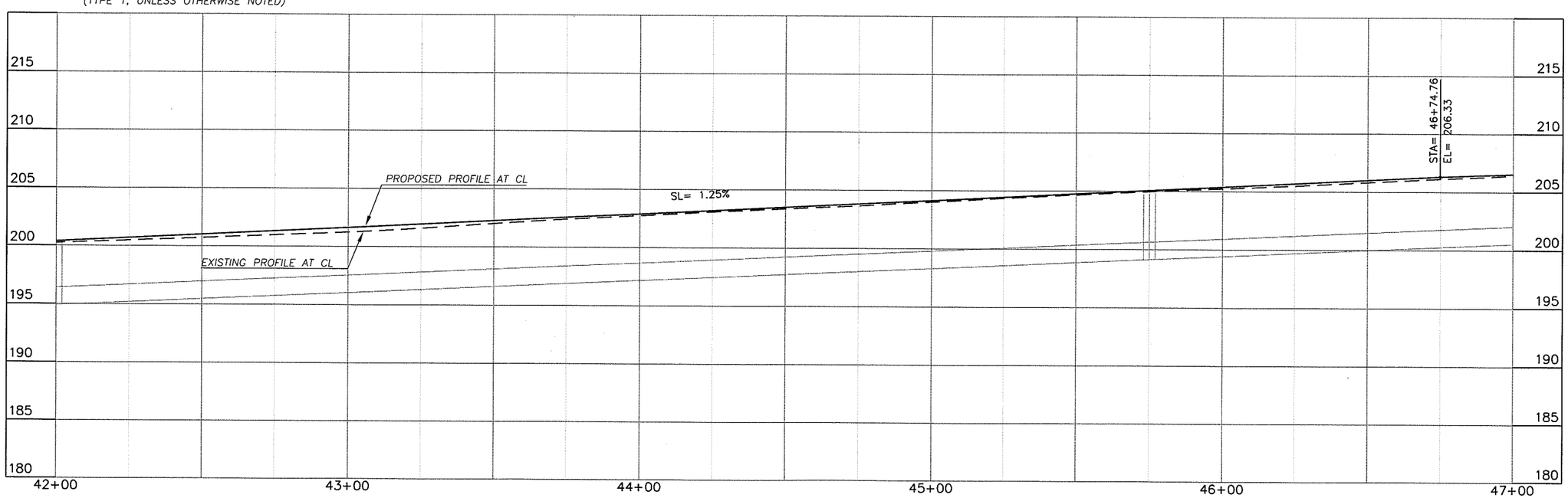
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP5
SHEET	X OF 61

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

STATE OF WASHINGTON BRUCE A. KLUG 39858 REGISTERED PROFESSIONAL ENGINEER EXPIRES: APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 42+00 TO STA 47+00)

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CLARK COUNTY WASHINGTON

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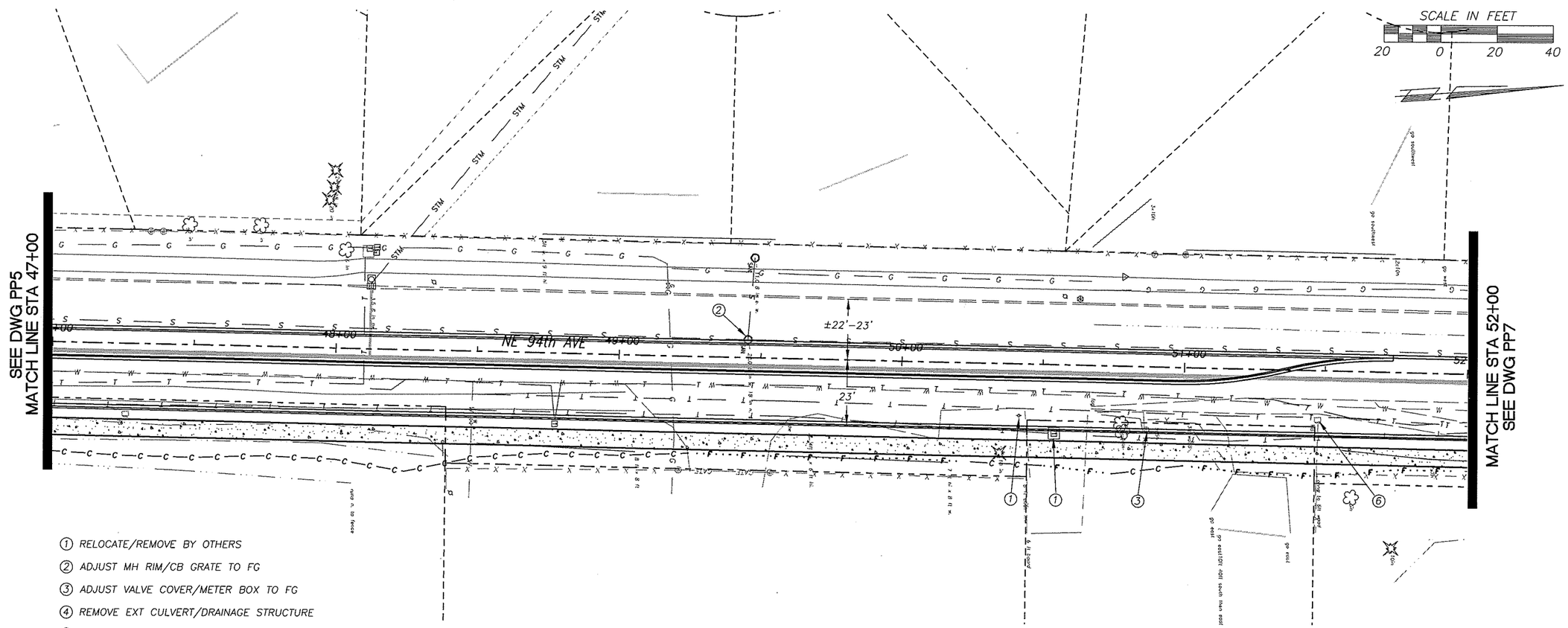


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

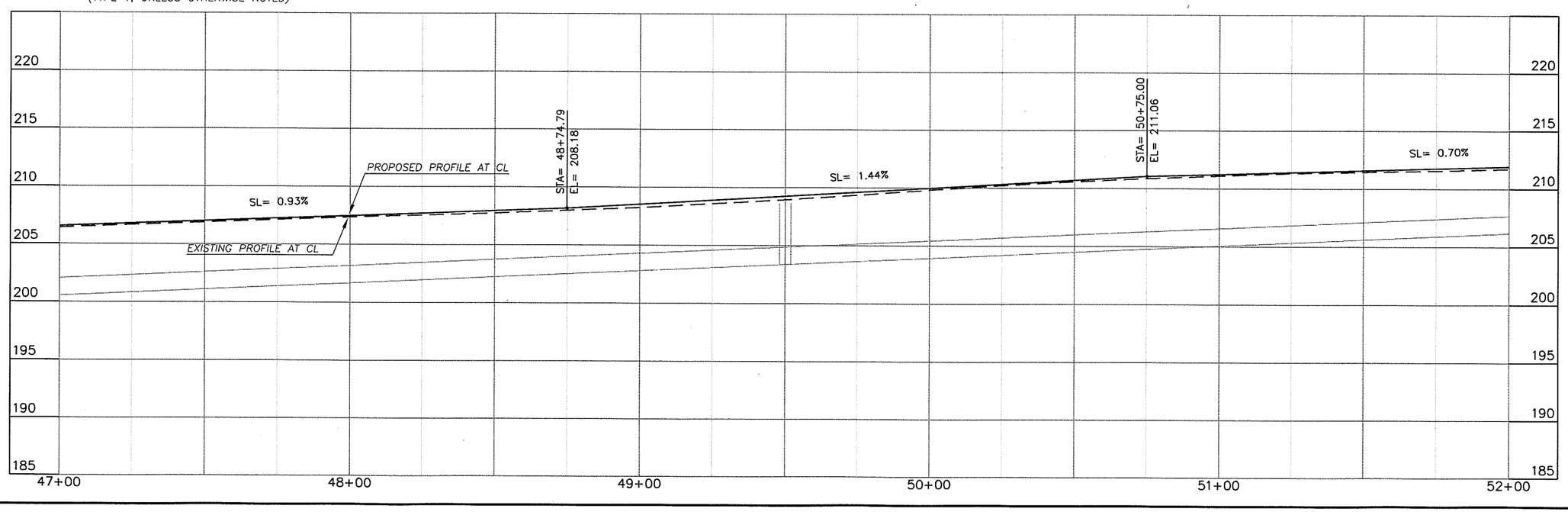
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP6
SHEET	X OF 61

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

STATE OF WASHINGTON BRUCE A. ALLEN 33868 PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 47+00 TO STA 52+00)

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CLARK COUNTY WASHINGTON

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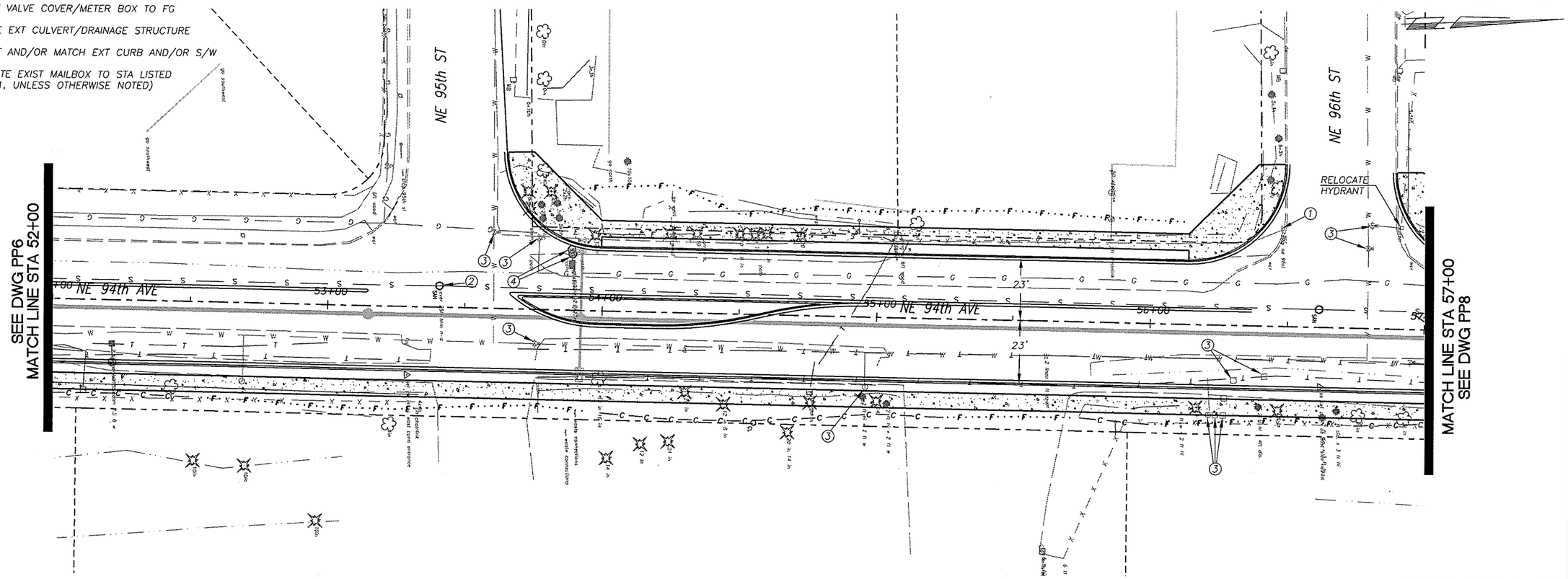
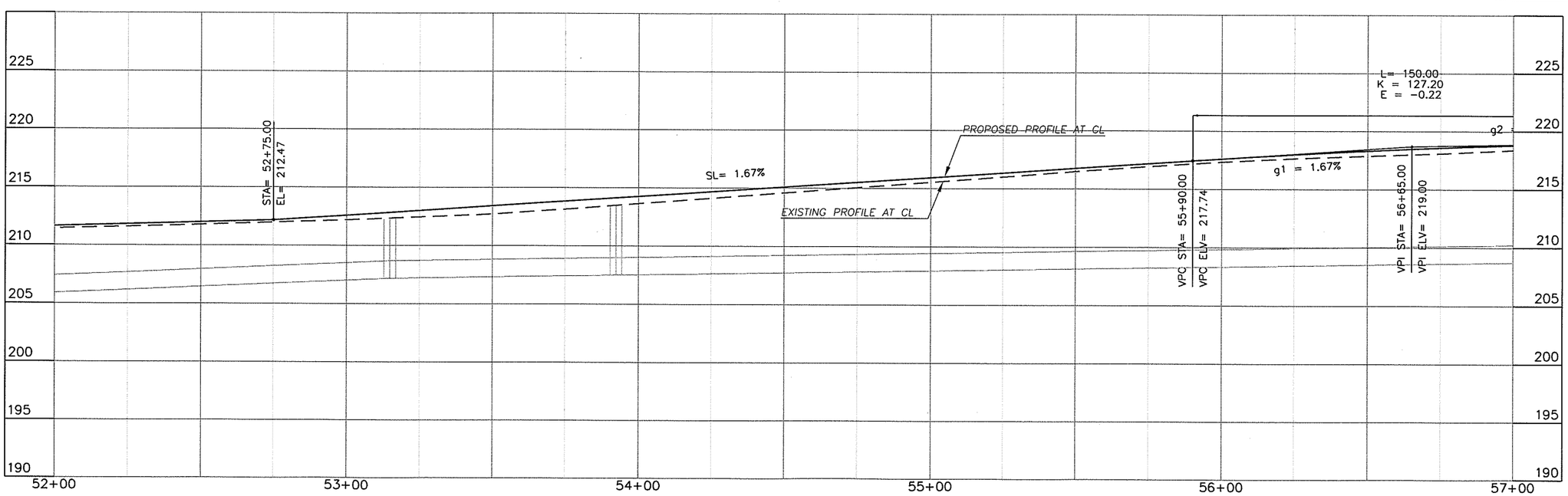
1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W
6. RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG.	PP7
SHEET	X OF 61

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

PAUL E. KIRKLAND STATE OF WASHINGTON 23888 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 52+00 TO STA 57+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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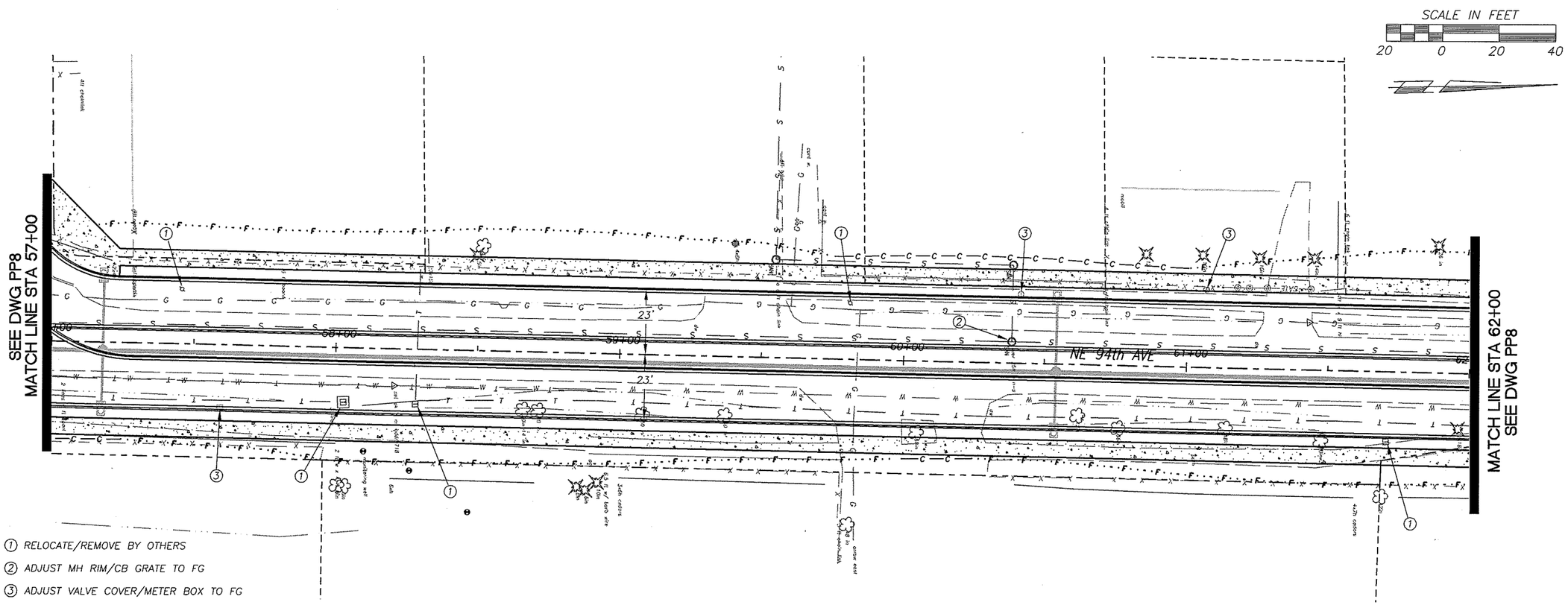


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

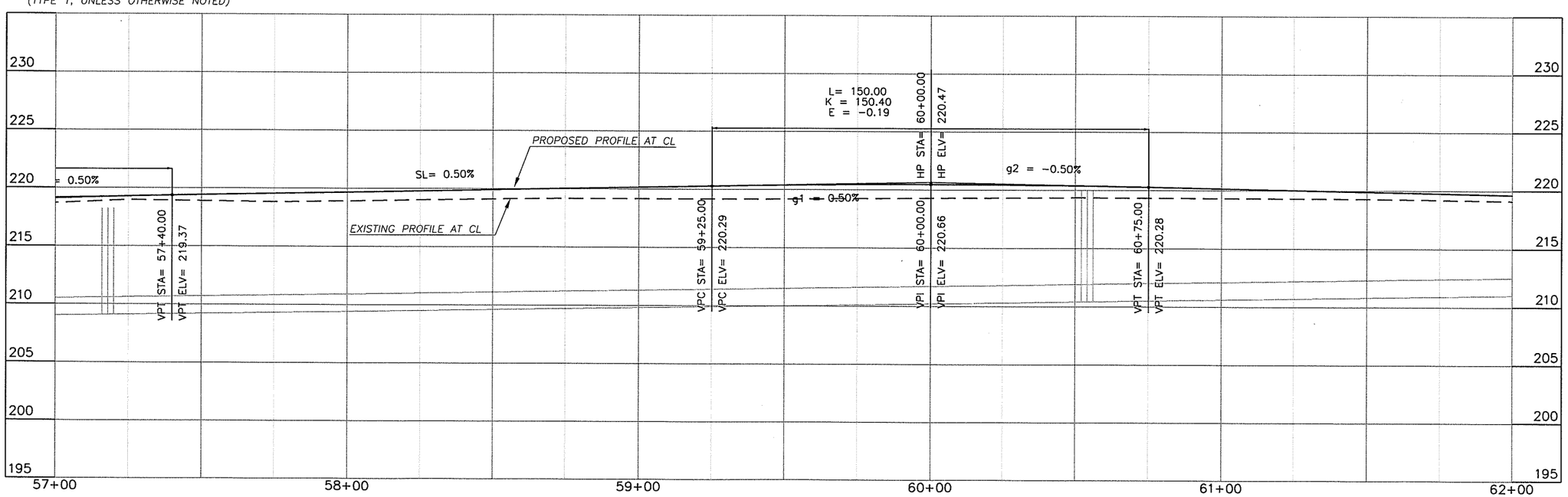
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP8
SHEET	X OF 61

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

STATE OF WASHINGTON BRUCE A. HOLE 37598 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 57+00 TO STA 62+00)

proud past, promising future

CLARK COUNTY WASHINGTON

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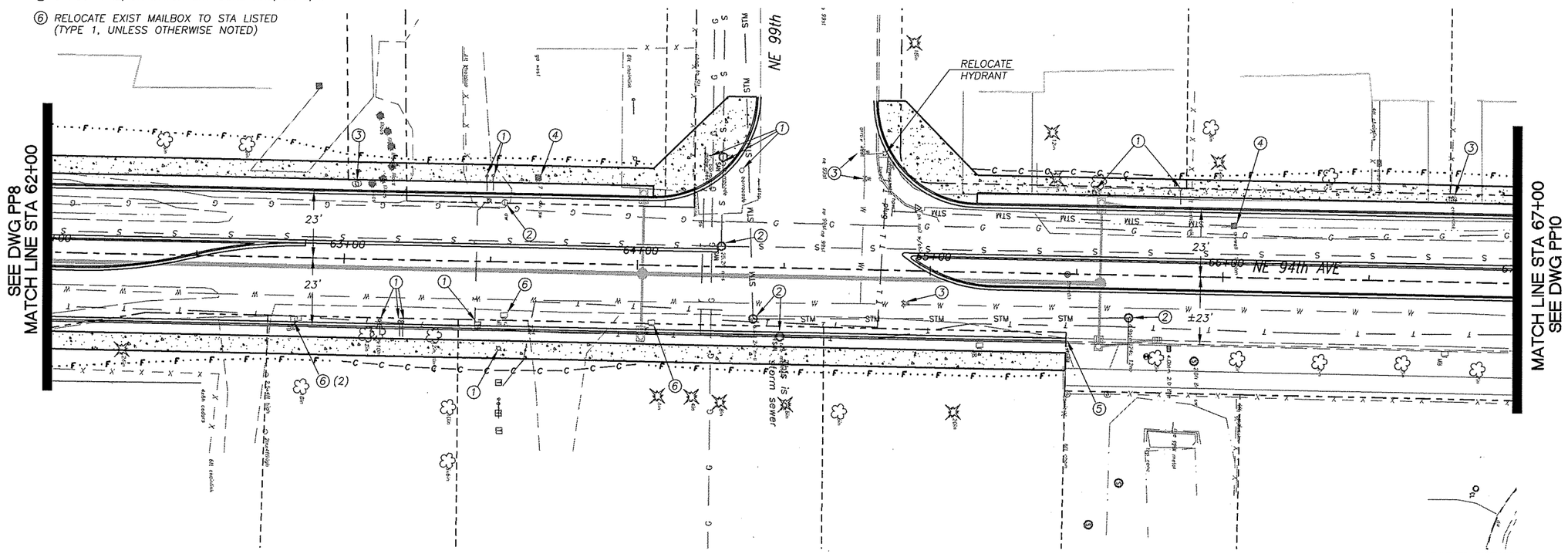
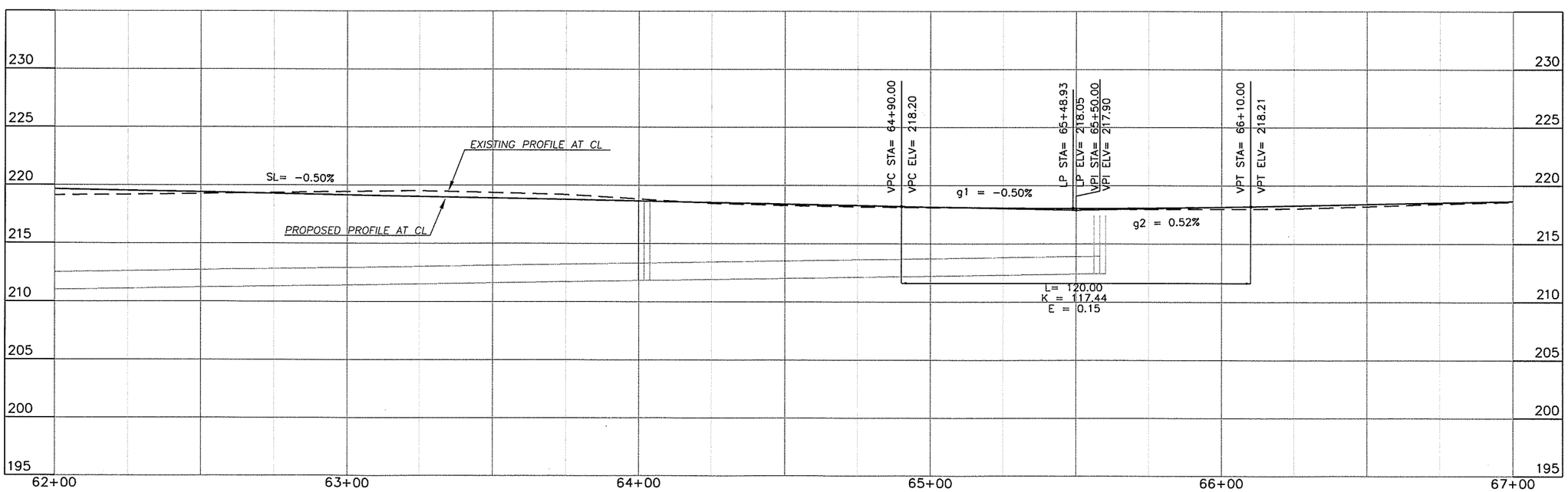
1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W
6. RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

SCALE IN FEET
20 0 20 40



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG.	PP9
SHEET	X OF 61

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

STEVEN A. ALLEN
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 62+00 TO STA 67+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. RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

SCALE IN FEET

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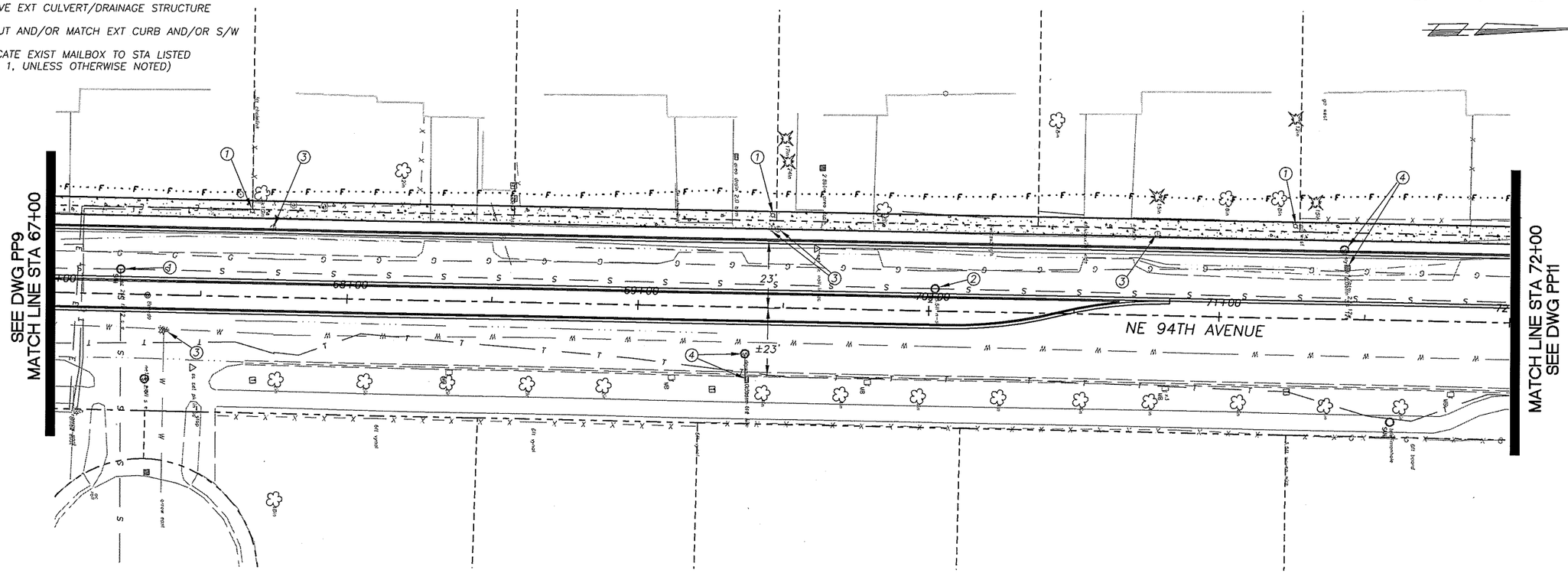
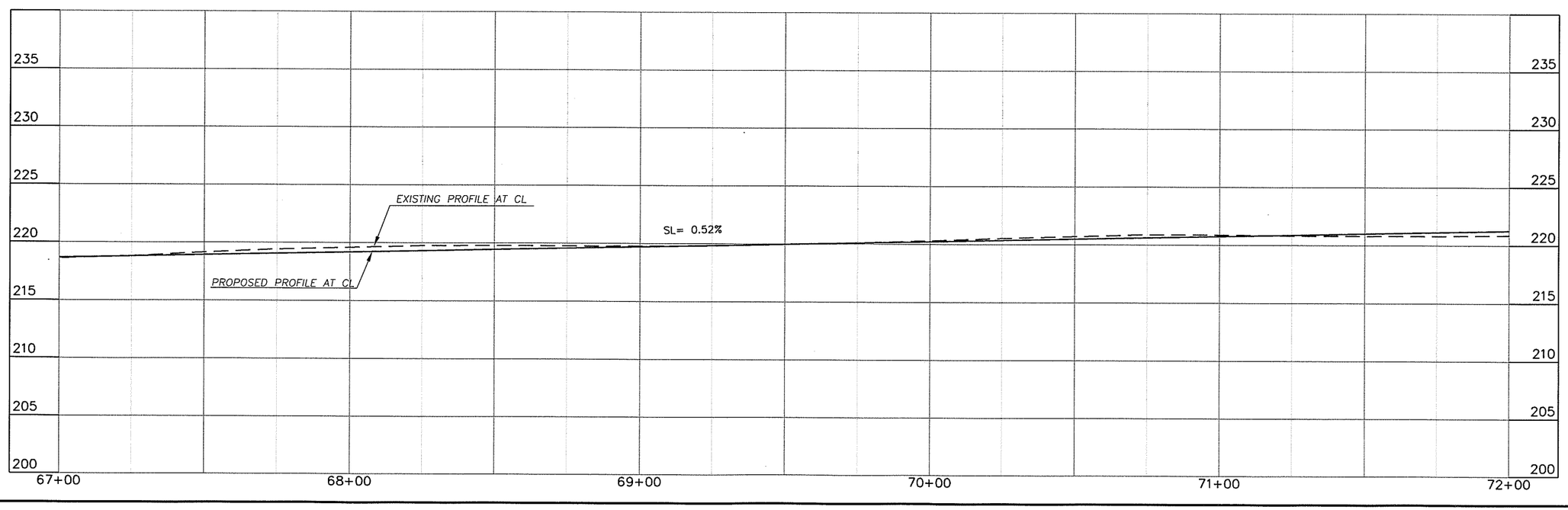


UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG.	PP10
SHEET	X OF 61

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

BRUCE A. KLOC STATE OF WASHINGTON 20888 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
PLAN & PROFILE (STA 67+00 TO STA 72+00)

proud past, promising future
CLARK COUNTY WASHINGTON

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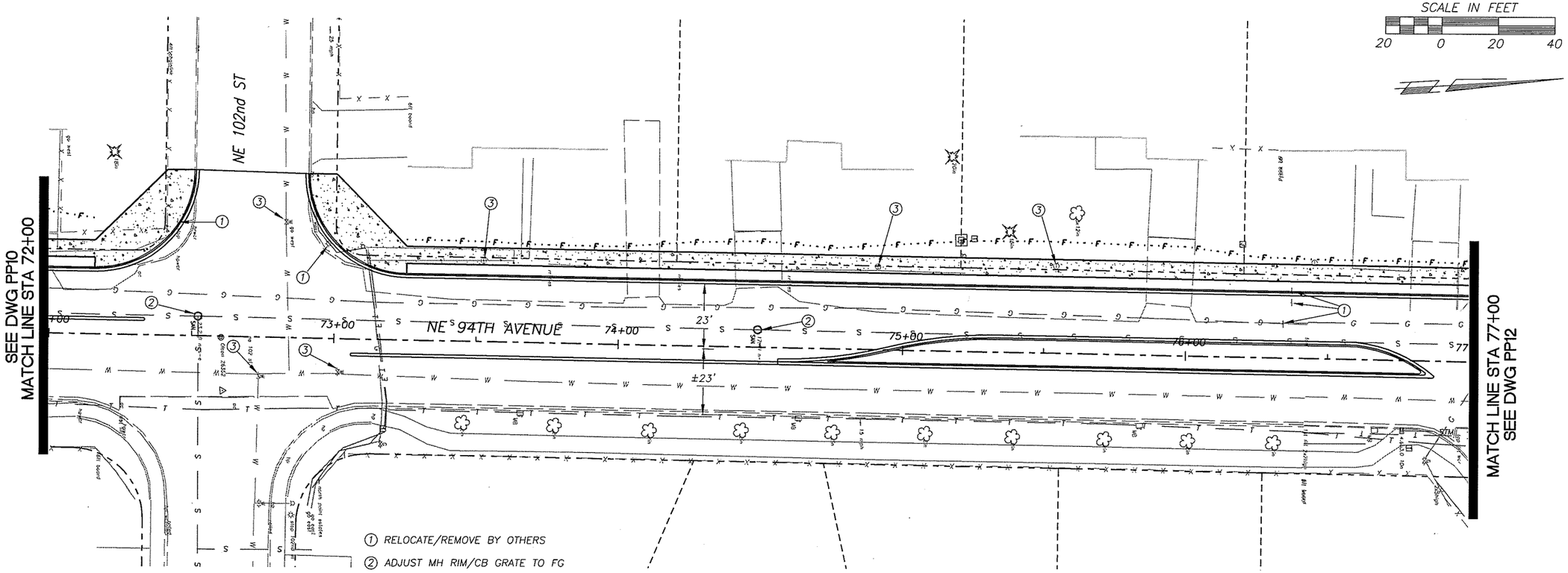


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

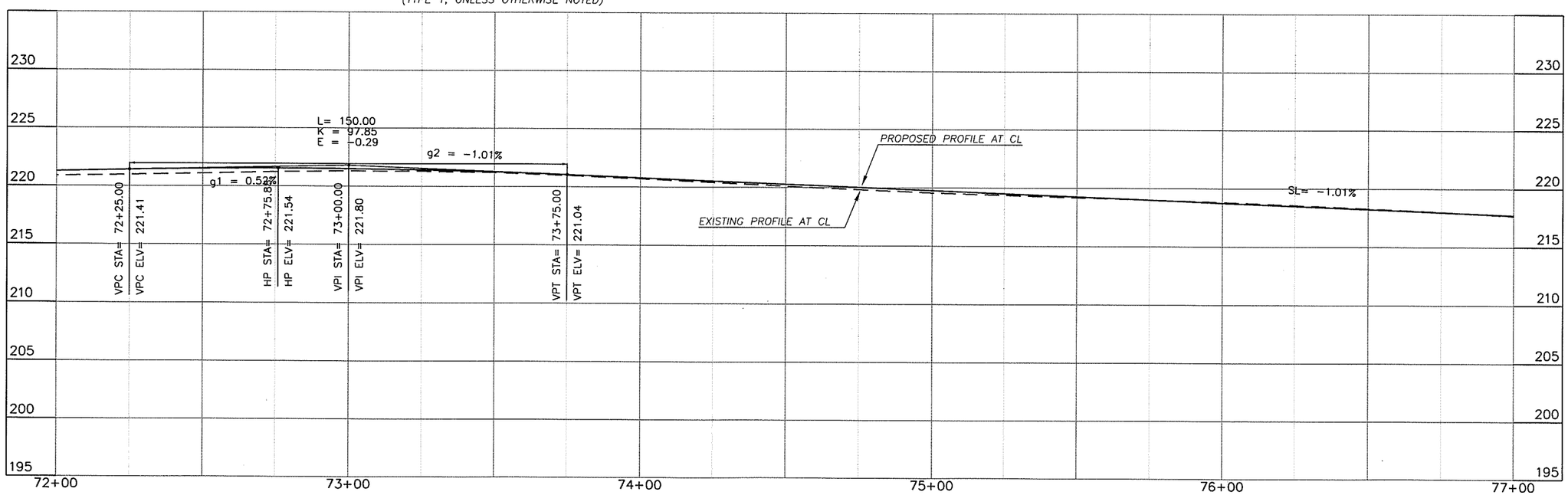
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP11
SHEET	X OF 61

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STEPHEN A. KILLIG STATE OF WASHINGTON 37880 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 72+00 TO STA 77+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. RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

SCALE IN FEET
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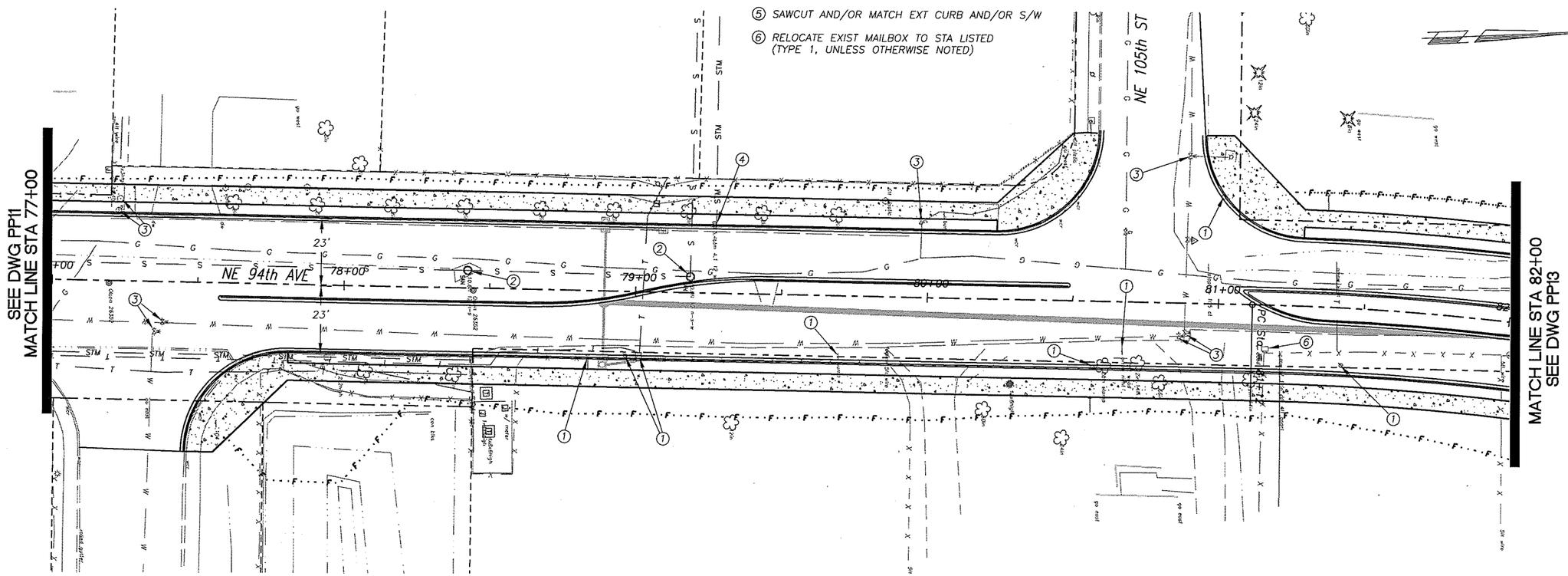
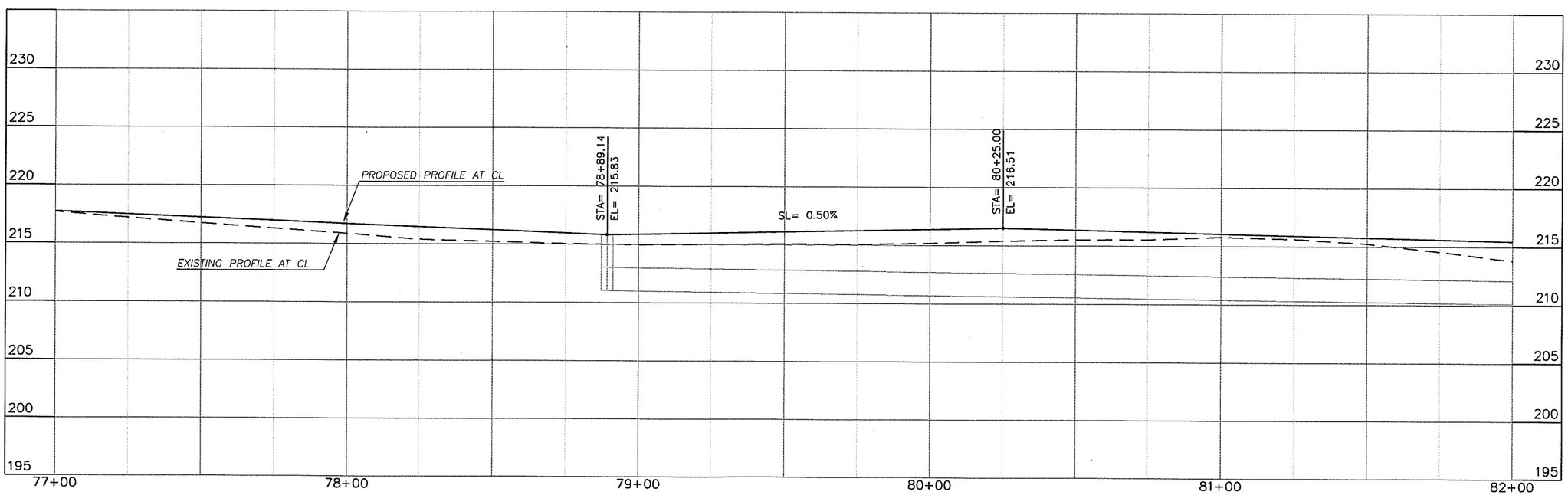


UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



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CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP12
SHEET	X OF 61

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NORTHWEST UTILITIES NOTIFICATION CENTER

STATE OF WASHINGTON
BRIAN K. OLLER
39588
REGISTERED PROFESSIONAL ENGINEER
EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
PLAN & PROFILE (STA 77+00 TO STA 82+00)

proud past, promising future
CLARK COUNTY
WASHINGTON

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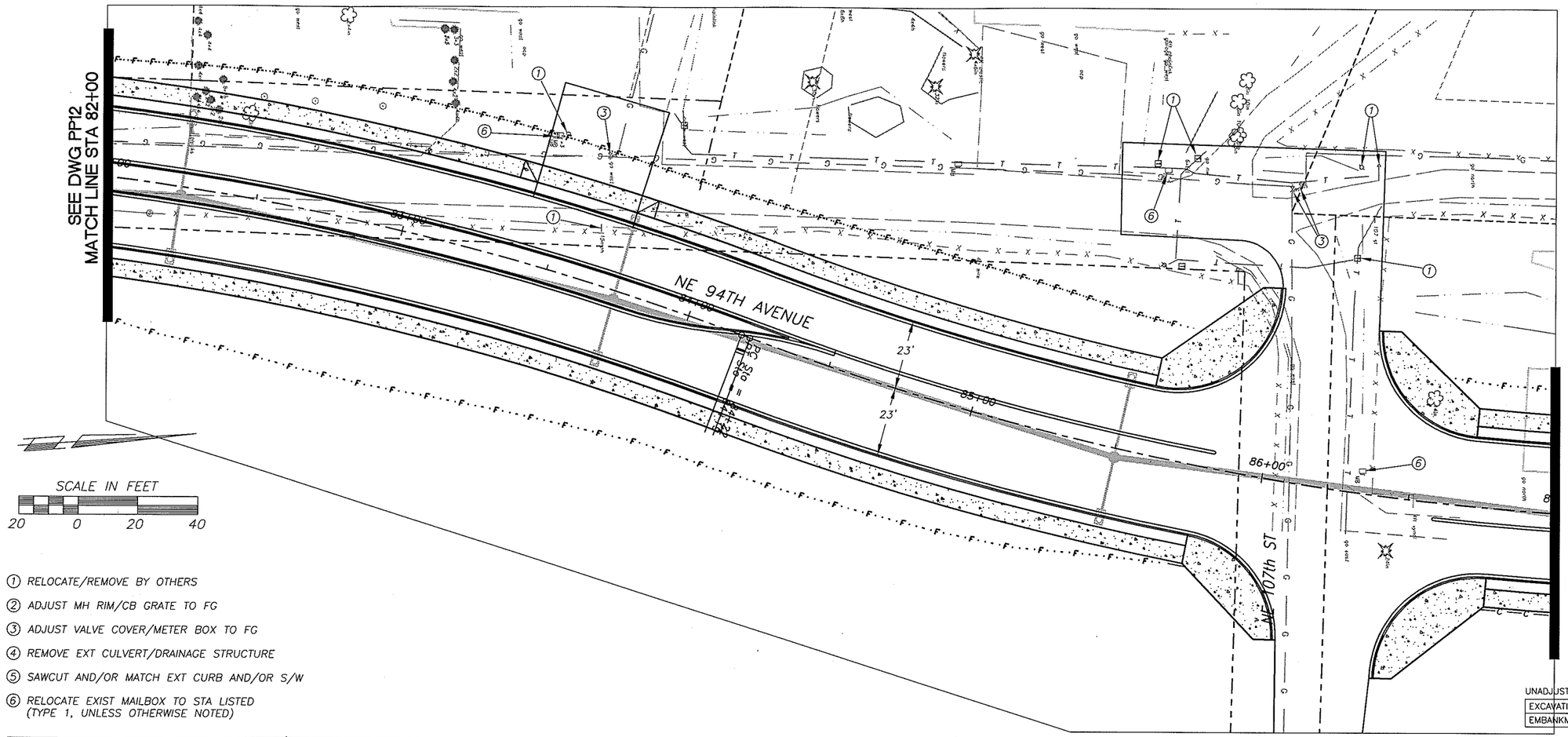


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

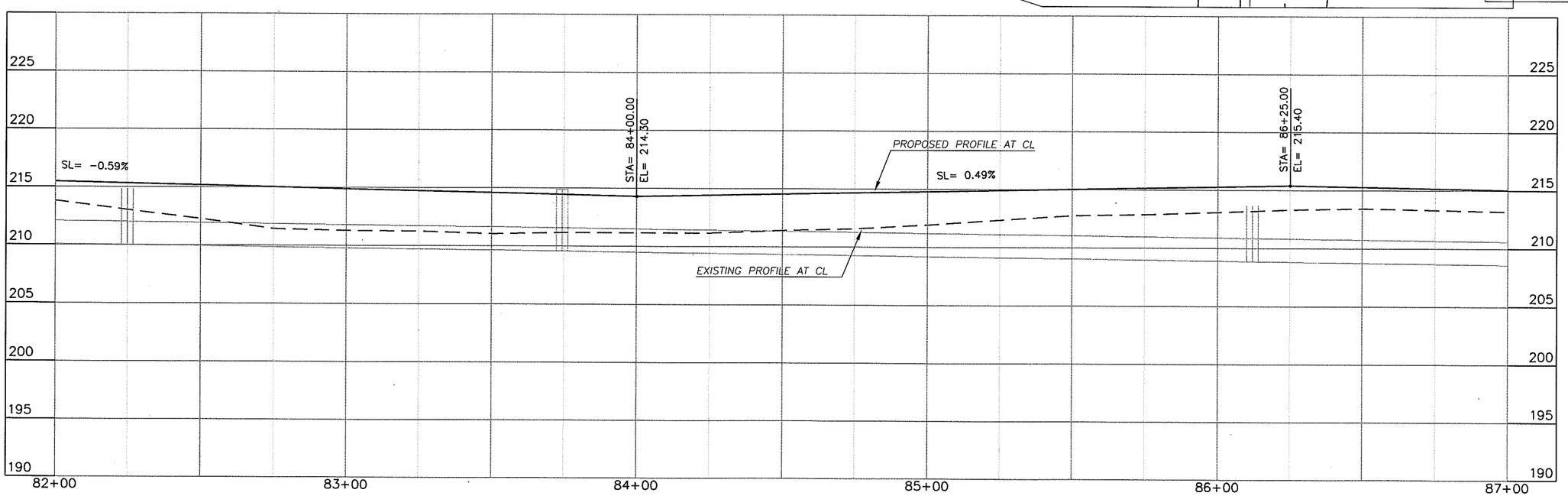
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



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CRP	350822
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DATE	09/15/05
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SHEET	X OF 61

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STATE OF WASHINGTON
BRUCE A. KUCK
35858
PROFESSIONAL ENGINEER
EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 82+00 TO STA 87+00)

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CLARK COUNTY
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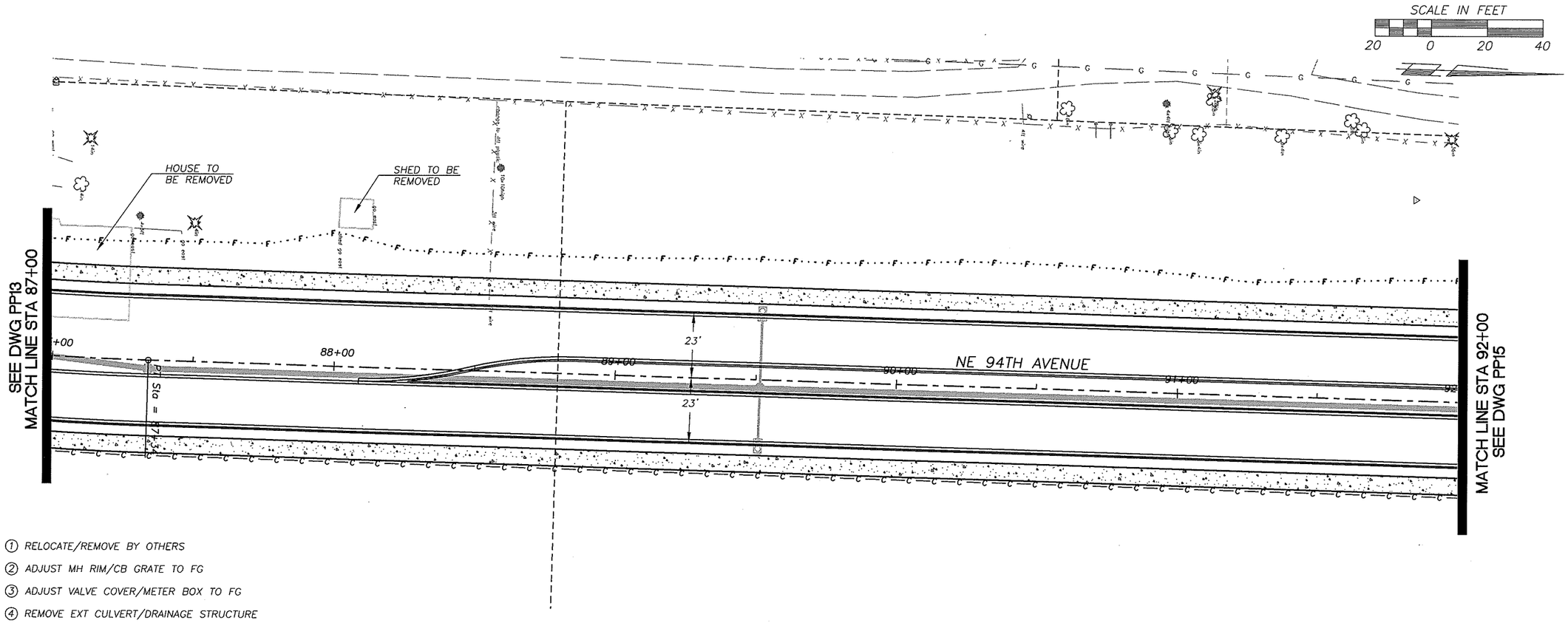


① RELOCATE/REMOVE BY OTHERS

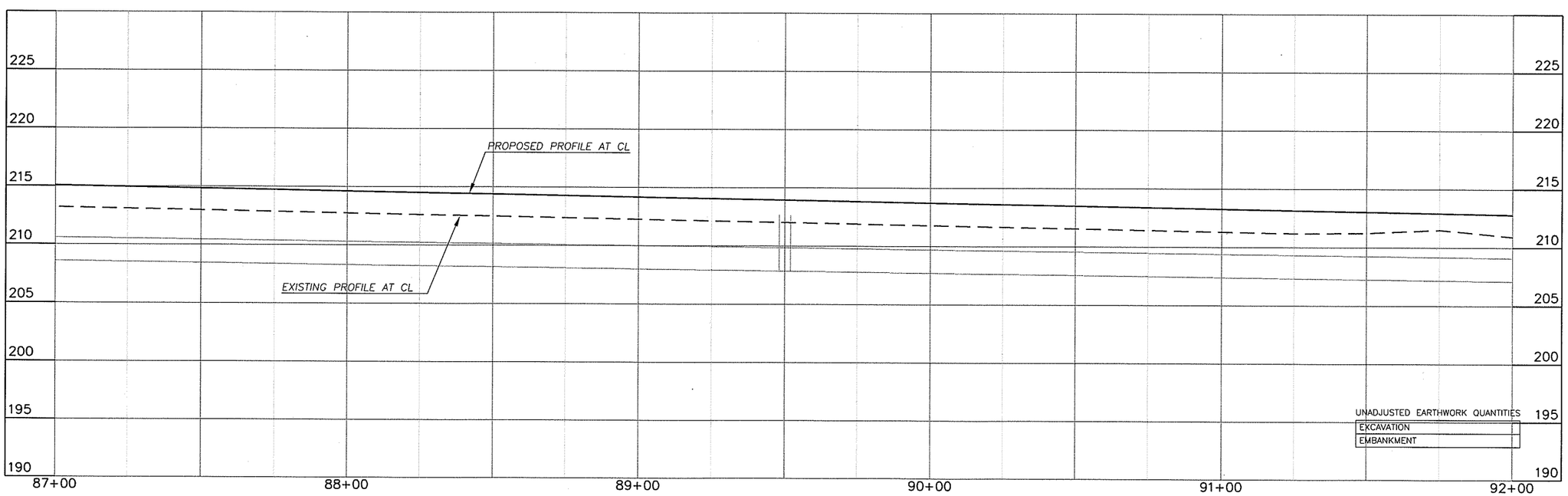
② ADJUST MH RIM/CB GRATE TO FG

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 RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT

DESIGNED	BK/ME
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CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP14
SHEET	X OF 61

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STATE OF WASHINGTON BRUCE A. ALLEN 35868 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
PLAN & PROFILE (STA 87+00 TO STA 92+00)

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CLARK COUNTY WASHINGTON

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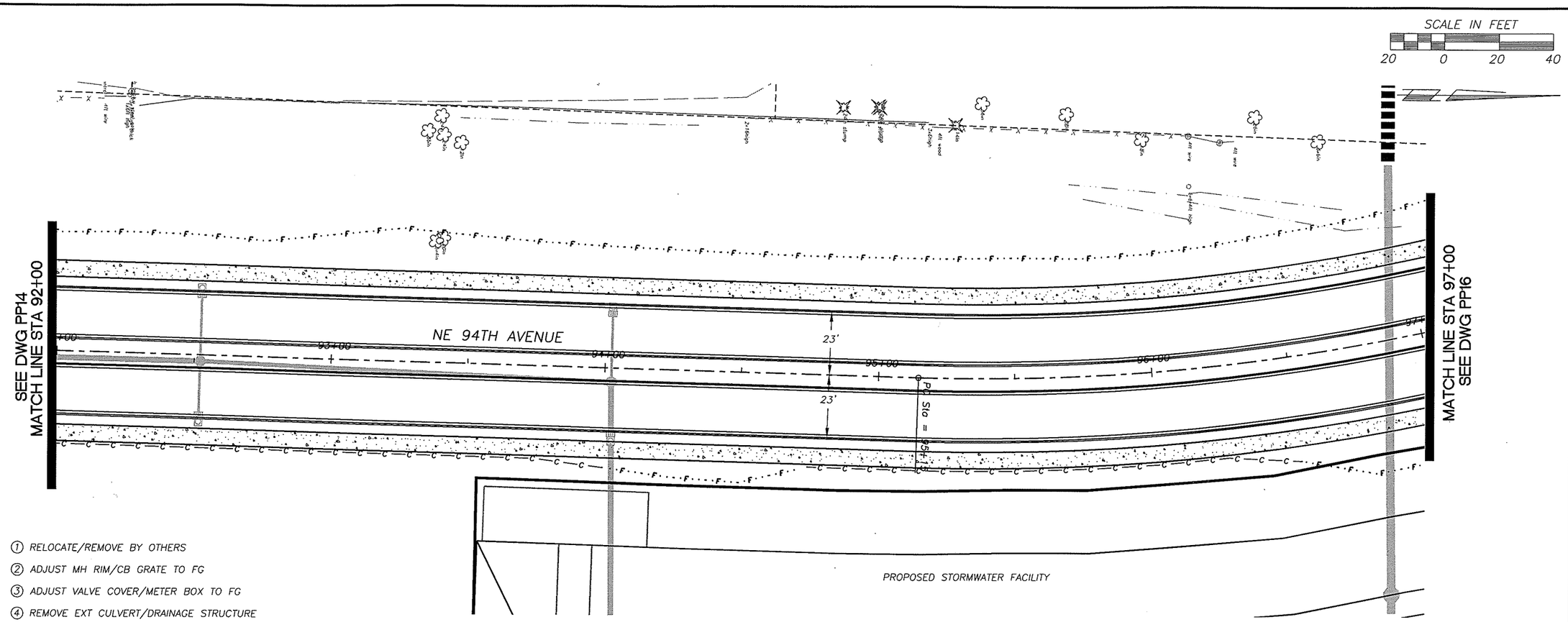


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

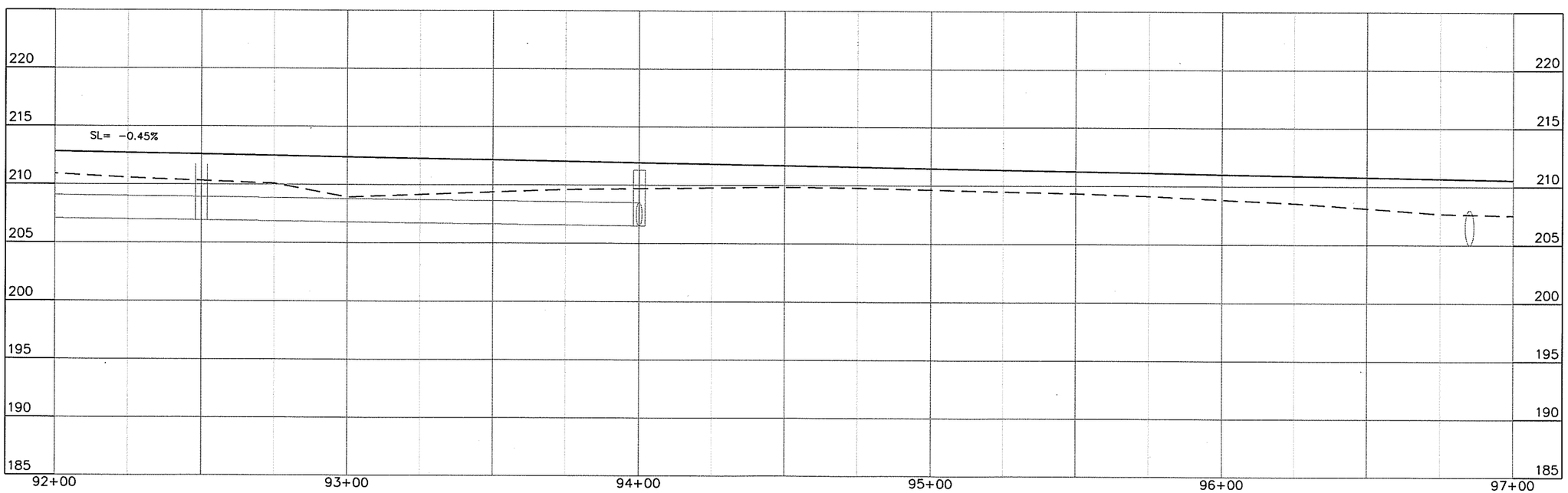
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



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VERT.	SEE SHEET
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STATE OF WASHINGTON BRIAN A. KLUG 23868 PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 92+00 TO STA 97+00)

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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 RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

SCALE IN FEET

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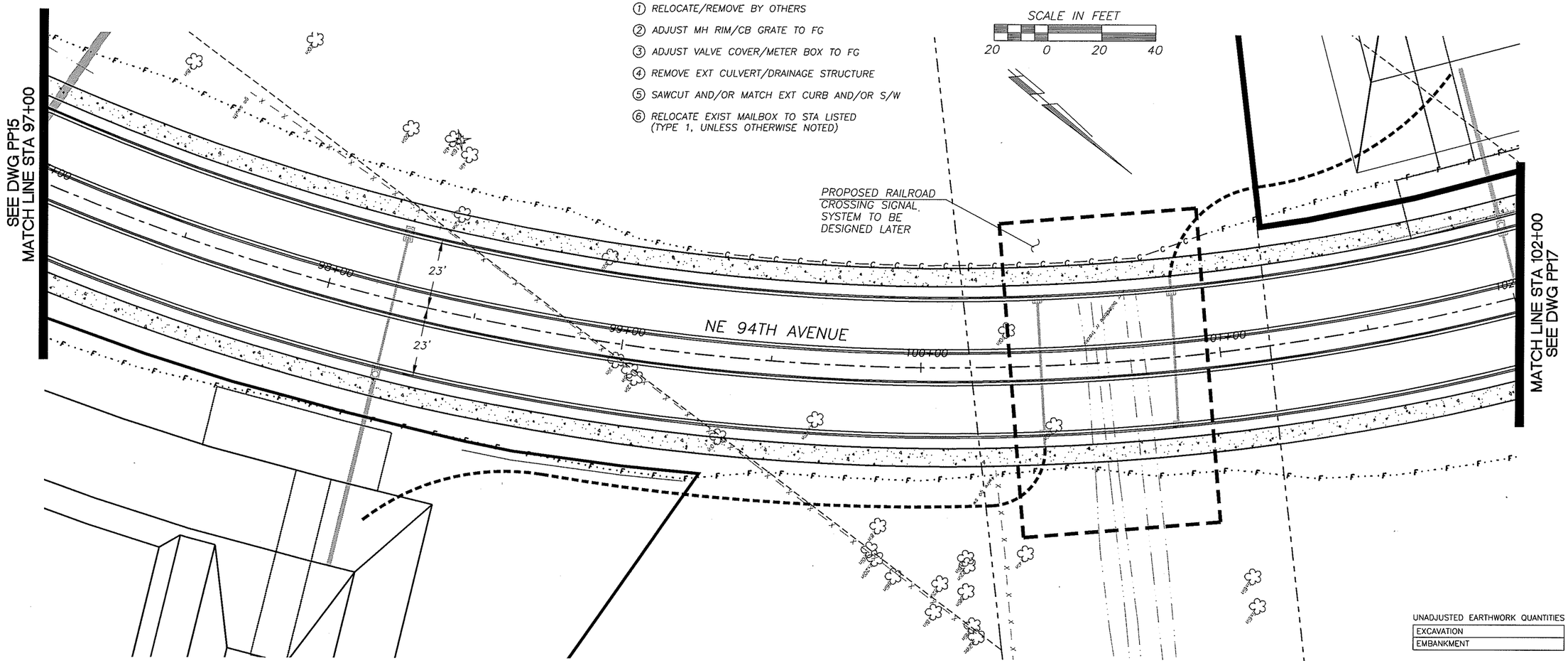
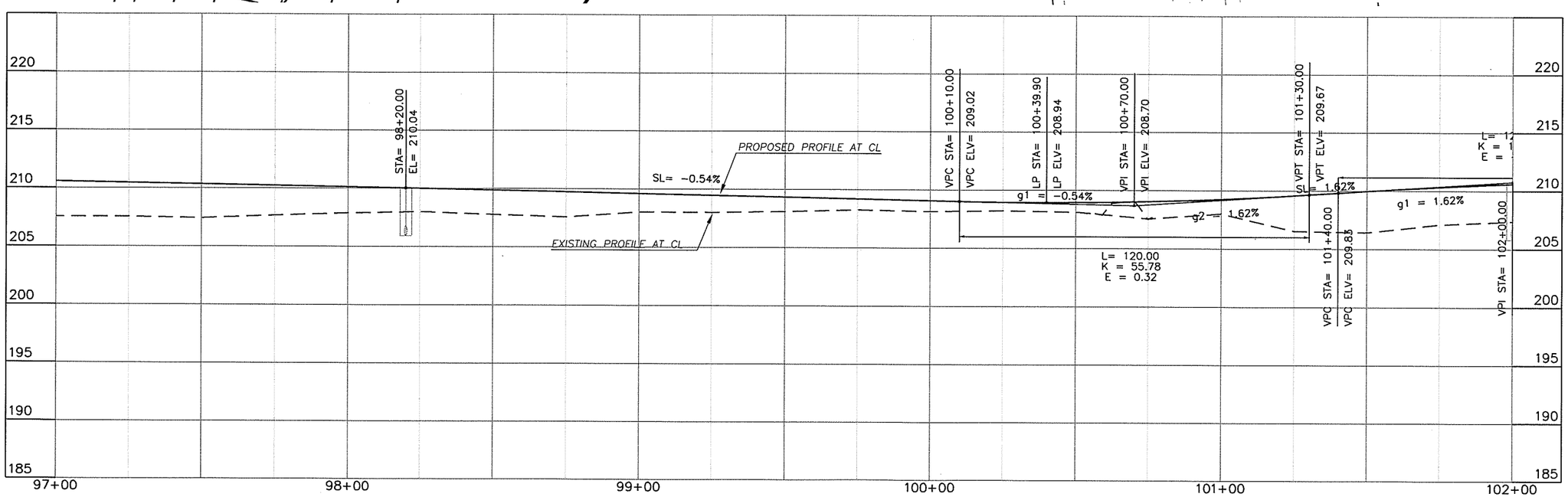


UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION
EMBANKMENT



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VERT. SEE SHEET
DATE 09/15/05
DWG: PP16
SHEET X OF 61

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STEVE A. ALLEN
STATE OF WASHINGTON
23868
PROFESSIONAL ENGINEER
EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 97+00 TO STA 102+00)

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CLARK COUNTY
WASHINGTON

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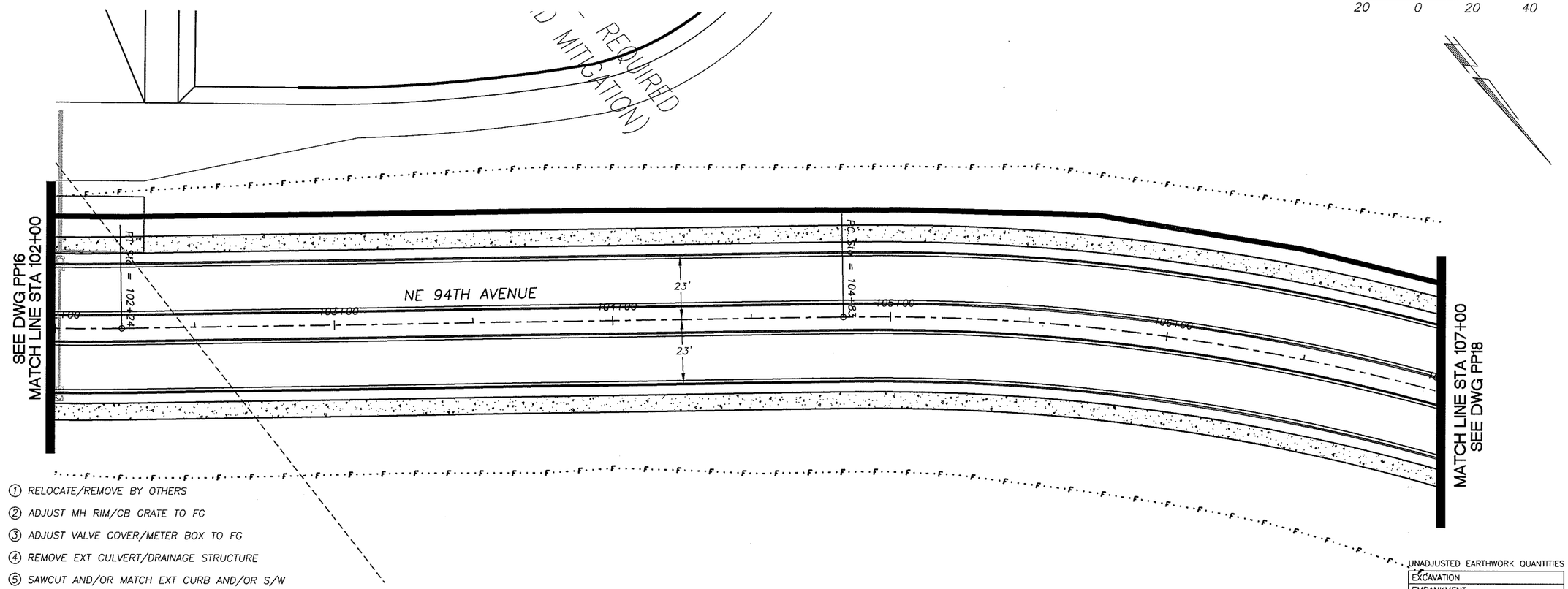


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

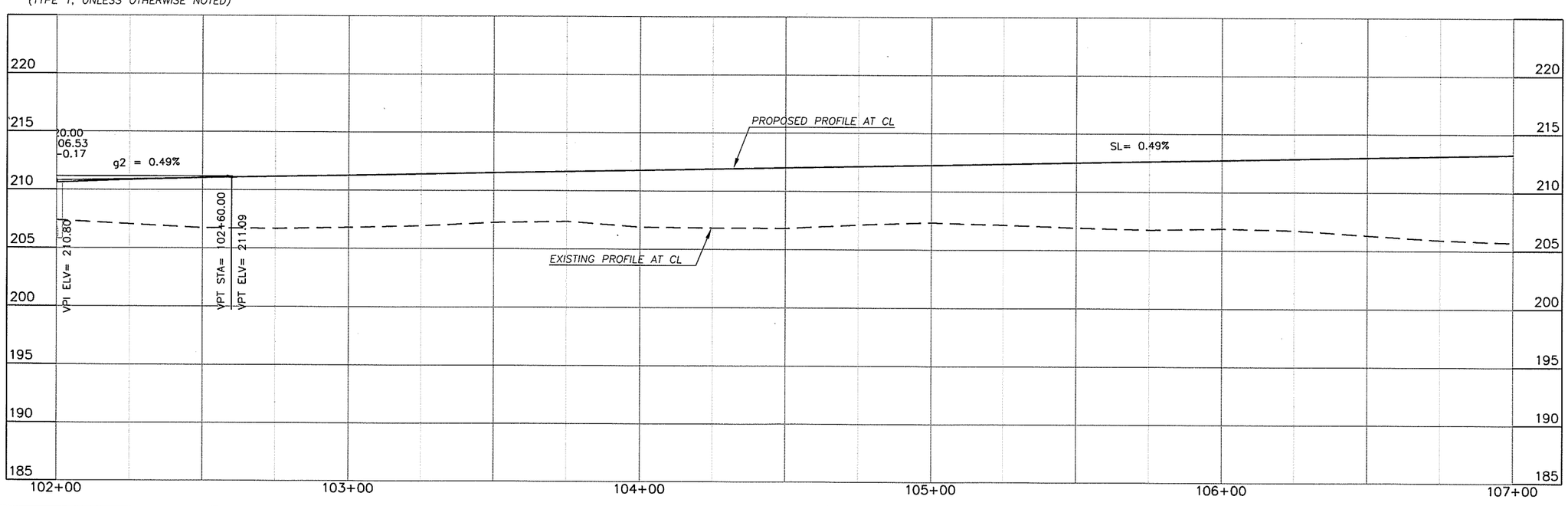
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



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CRP	350822
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VERT.	SEE SHEET
DATE	09/15/05
DWG:	PP17
SHEET	X OF 61

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EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 102+00 TO STA 107+00)

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CLARK COUNTY WASHINGTON

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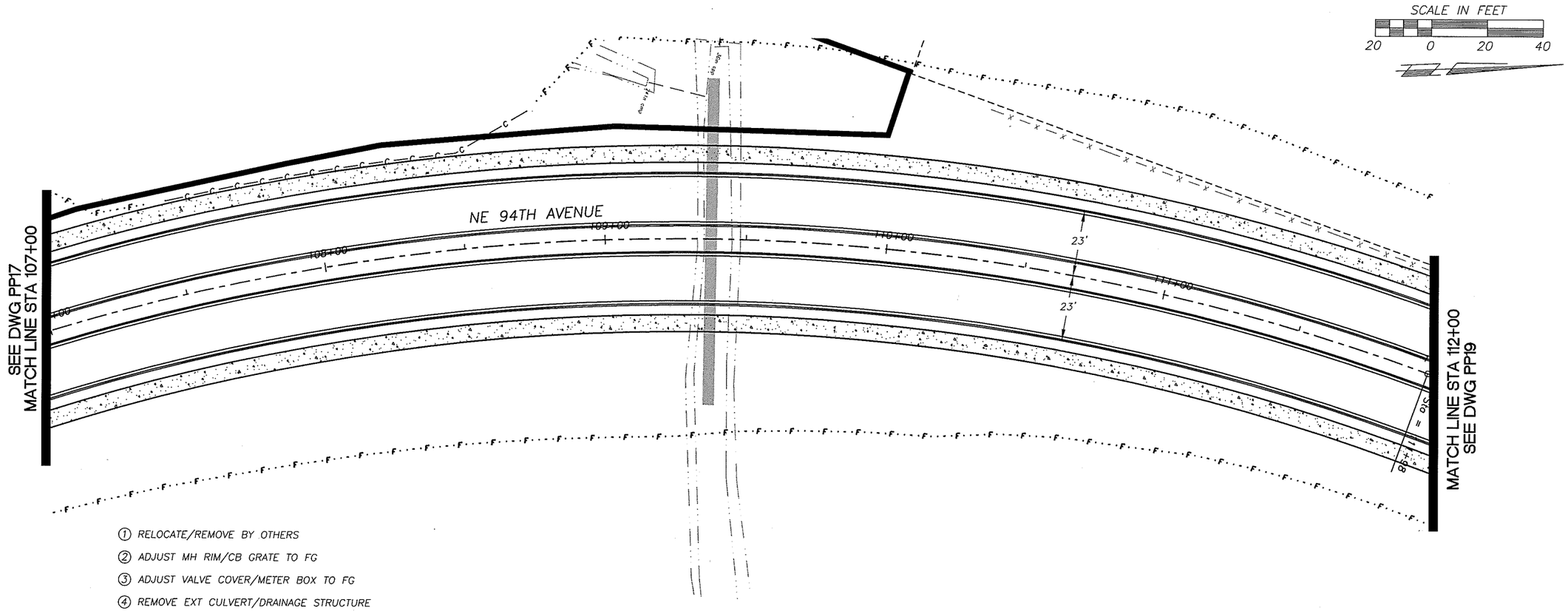


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

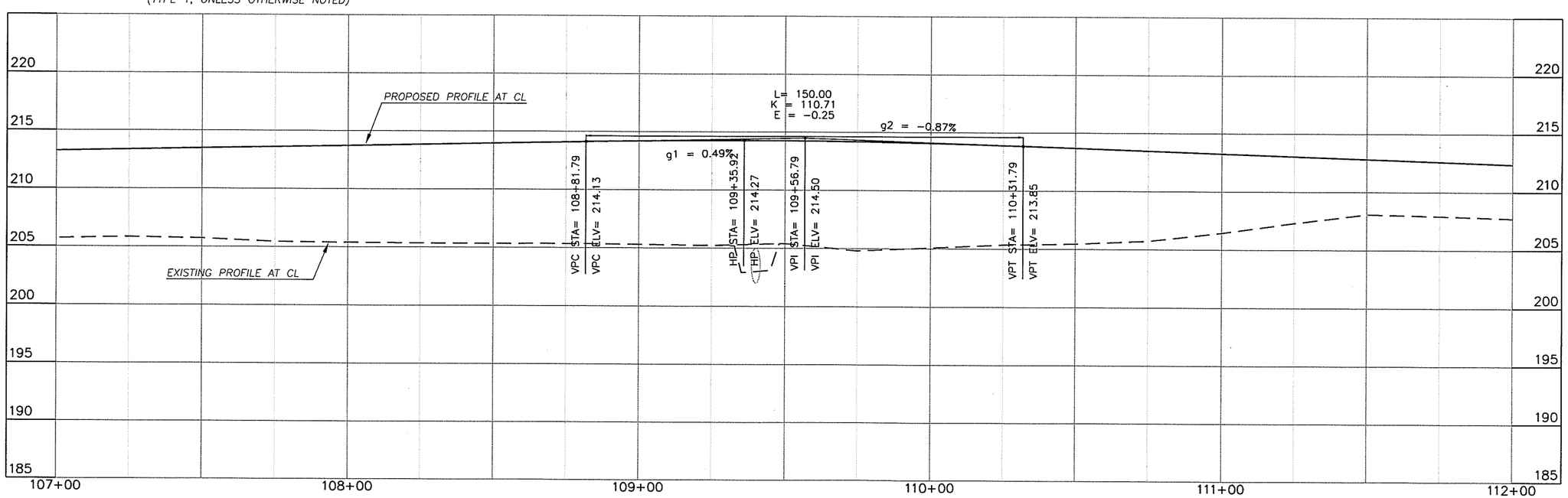
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
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VERT.	SEE SHEET
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DWG:	PP18
SHEET	X OF 61

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

STATE OF WASHINGTON BRUCE A. ALLEN 35858 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 107+00 TO STA 112+00)

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CLARK COUNTY WASHINGTON

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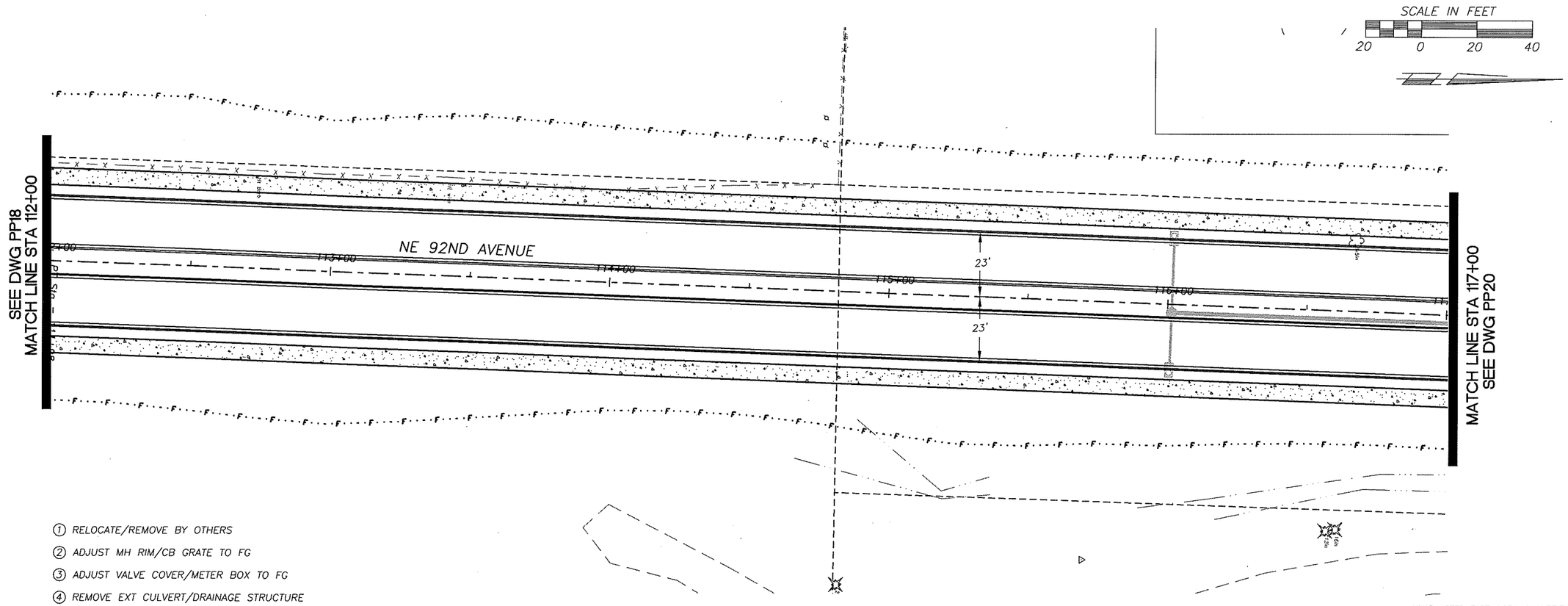


① RELOCATE/REMOVE BY OTHERS

② ADJUST MH RIM/CB GRATE TO FG

③ ADJUST VALVE COVER/METER BOX TO FG

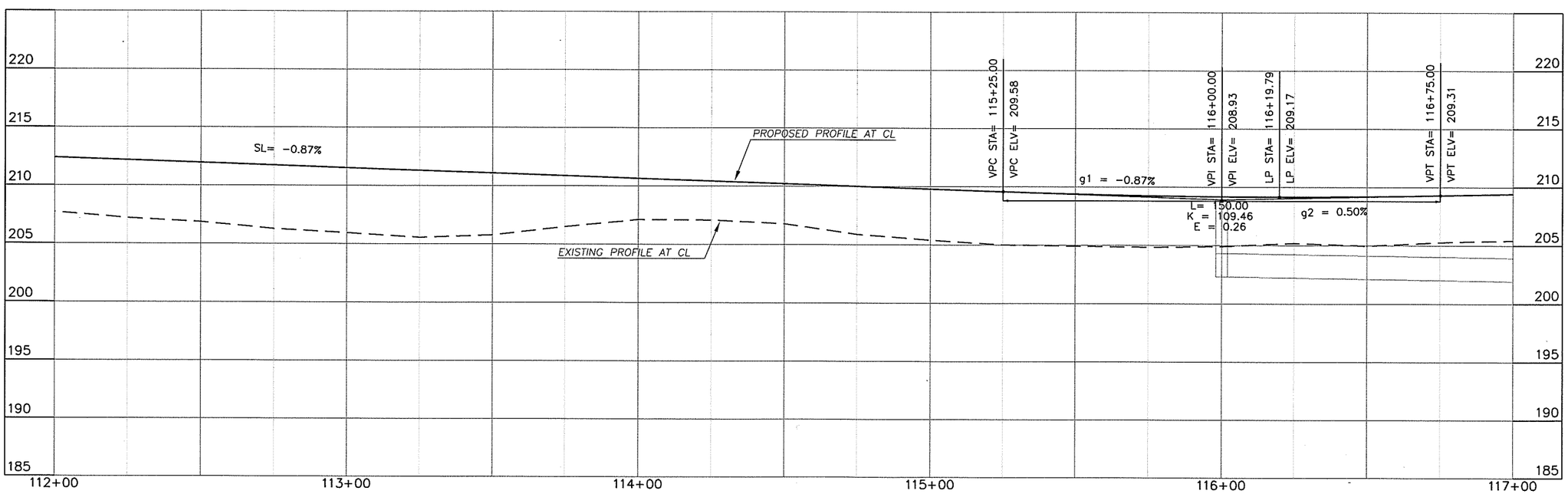
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



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VERT. SEE SHEET
DATE 09/15/05
DWG: PP19
SHEET X OF 61

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

CLARK A. KILLIC
STATE OF WASHINGTON
38868
REGISTERED PROFESSIONAL ENGINEER
EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA 112+00 TO STA 117+00)

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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

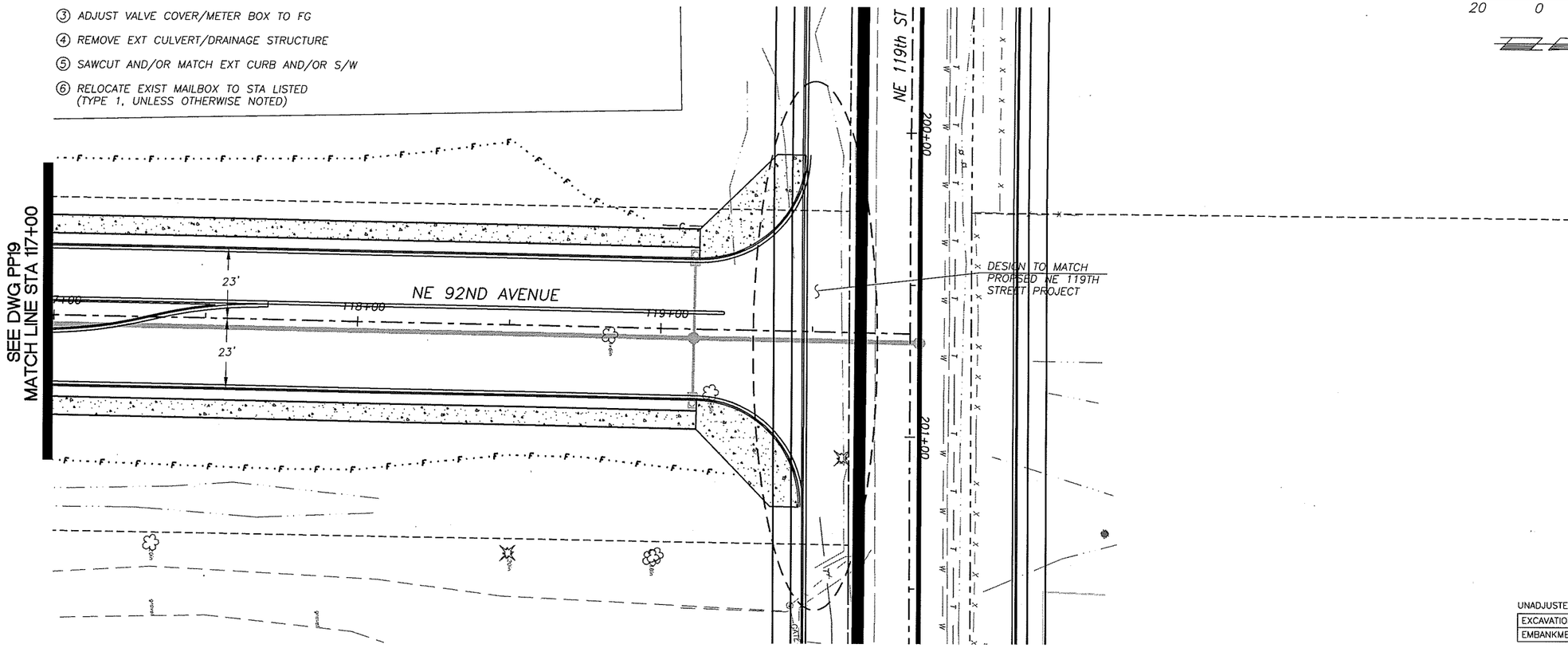
④ REMOVE EXT CULVERT/DRAINAGE STRUCTURE

⑤ SAWCUT AND/OR MATCH EXT CURB AND/OR S/W

⑥ RELOCATE EXIST MAILBOX TO STA LISTED (TYPE 1, UNLESS OTHERWISE NOTED)

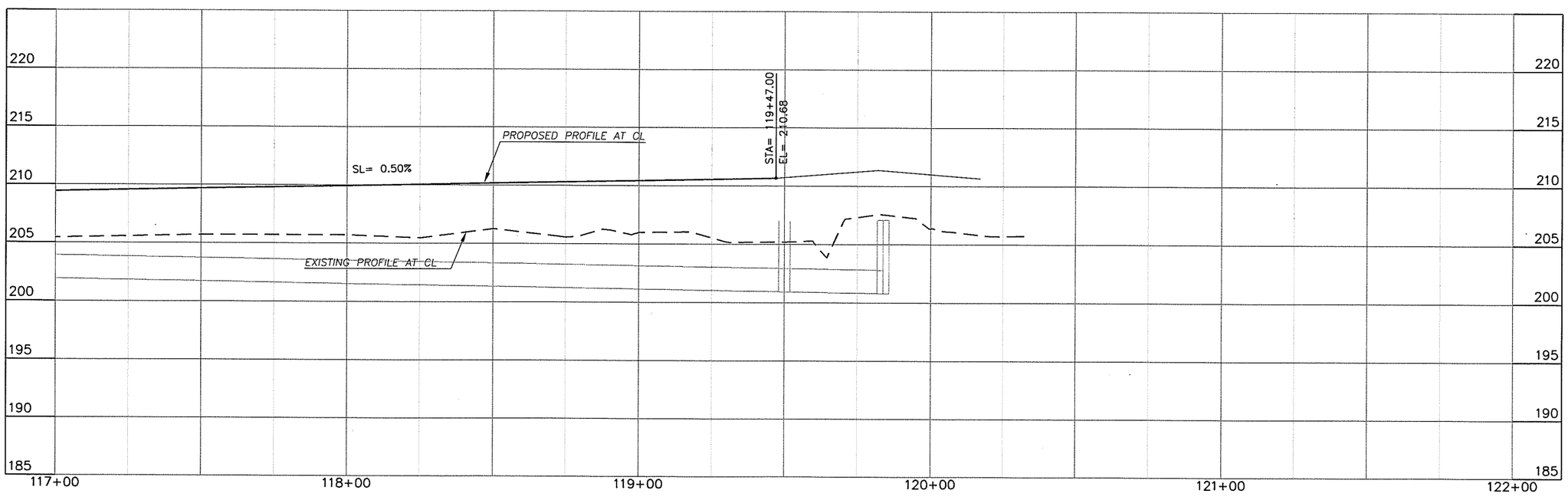
SCALE IN FEET

20 0 20 40



UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	
EMBANKMENT	



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DRAWN	KB/RK
CRP	350822
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VERT.	SEE SHEET
DATE	09/15/05
DWG.	PP20
SHEET	X OF 61

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

STATE OF WASHINGTON BRUCE A. KILLIG 19884 REGISTERED PROFESSIONAL ENGINEER EXPIRES APRIL 7, 2006

ENGINEERING PROGRAM DESIGN SECTION

NE 94TH AVENUE

PLAN & PROFILE (STA. 112+00 TO STA EOP)

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CLARK COUNTY WASHINGTON

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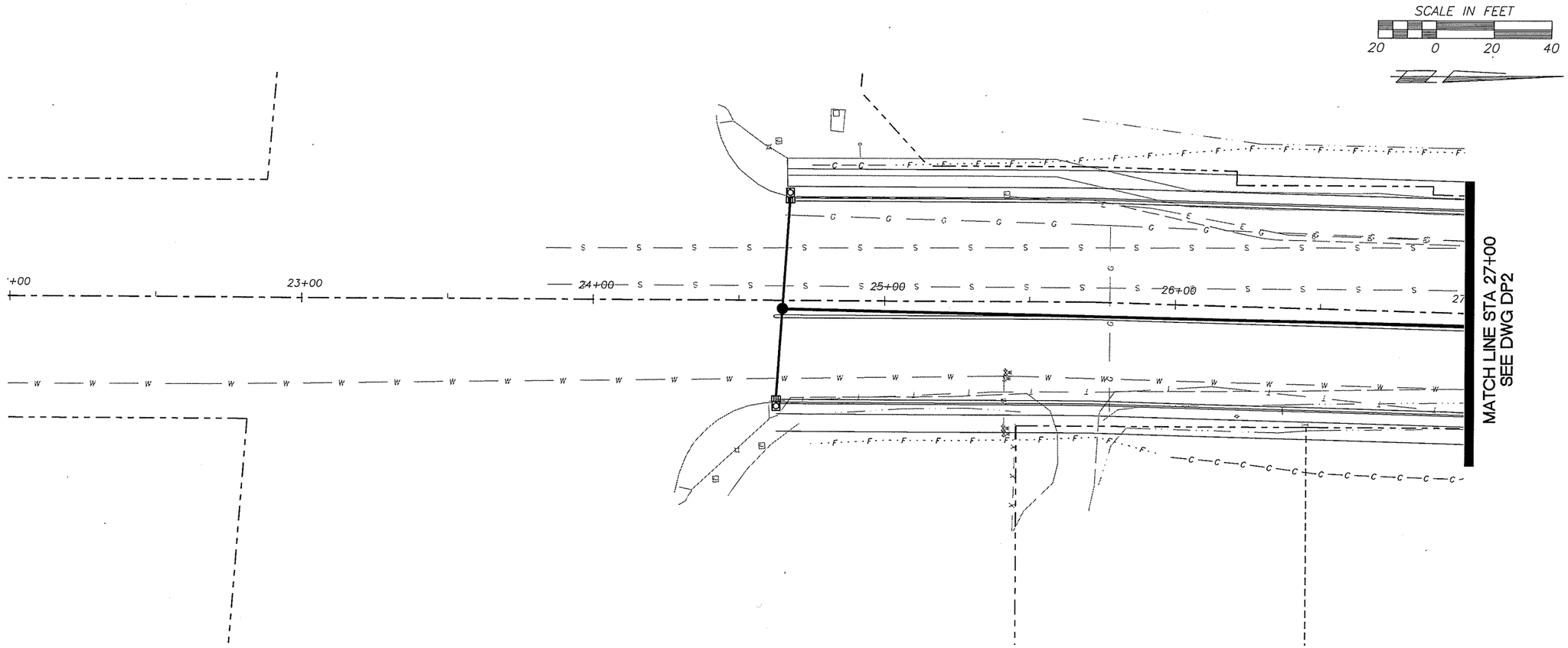

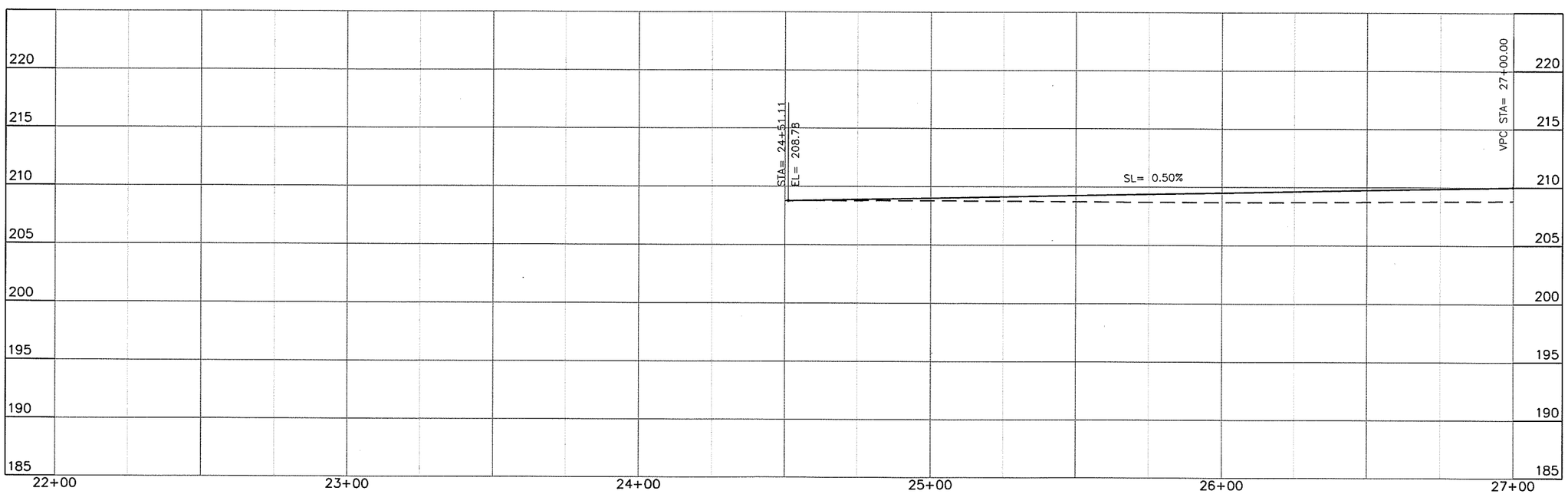

DESIGNED	BK/ME
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	DP1
SHEET	X OF 61

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

MICHAEL M. ENDICK
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
EXPIRES MAY 26, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE

DRAINAGE PLAN (STA 22+00 TO STA 27+00)

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CLARK COUNTY
WASHINGTON

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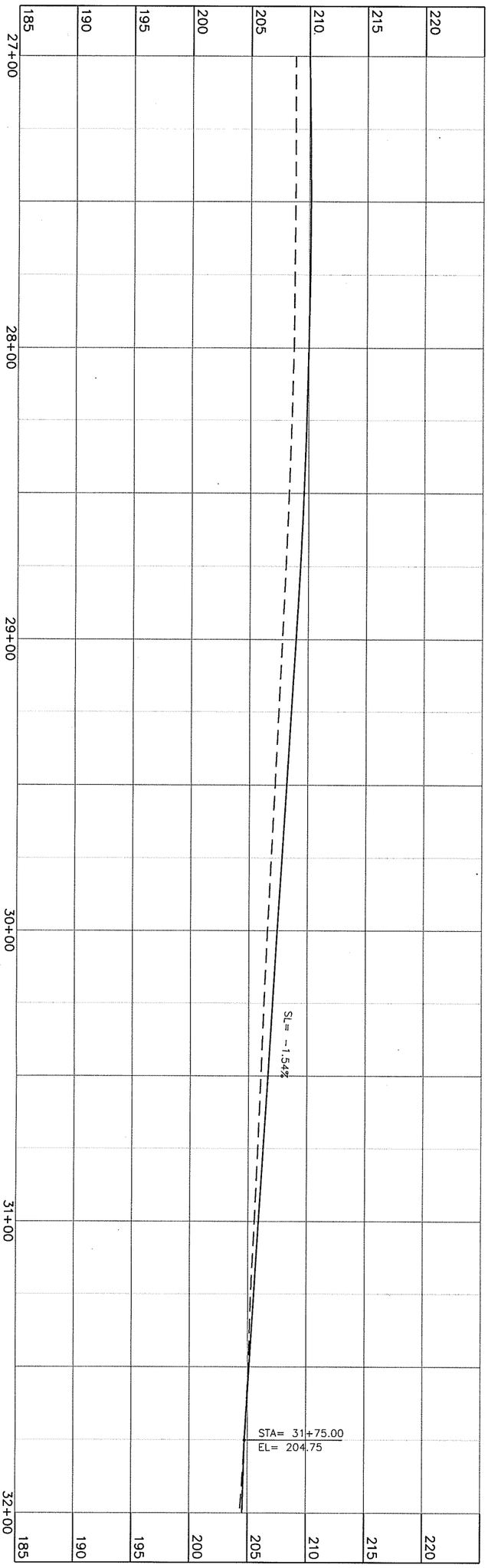

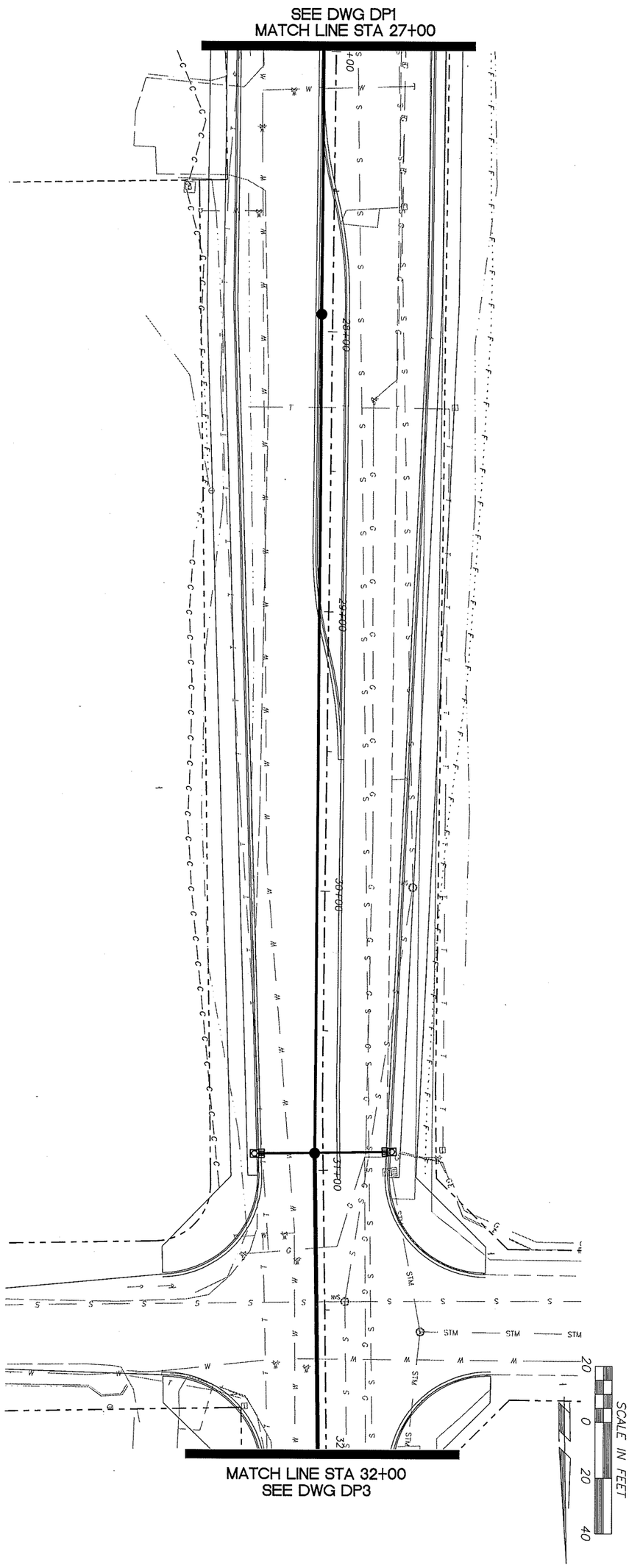

CLARK COUNTY
WASHINGTON
proud past, promising future

ENGINEERING PROGRAM
DESIGN SECTION

NE 94TH AVENUE
DRAINAGE PLAN (STA 27+00 TO STA 32+00)

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

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NORTHWEST UTILITIES NOTIFICATION CENTER

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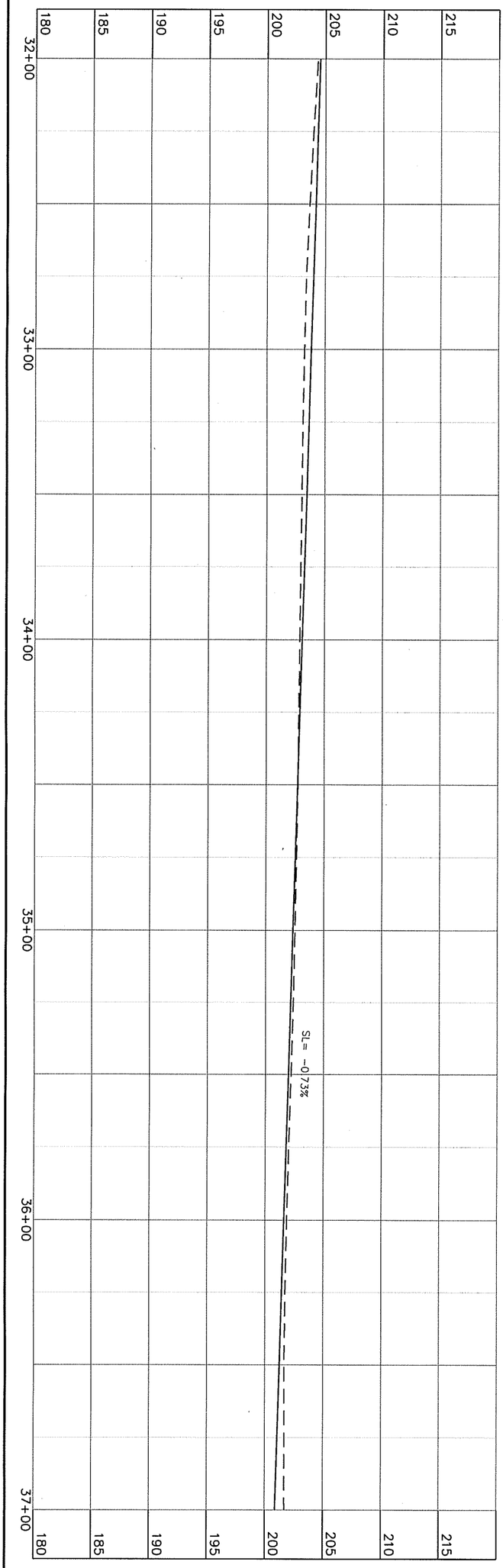
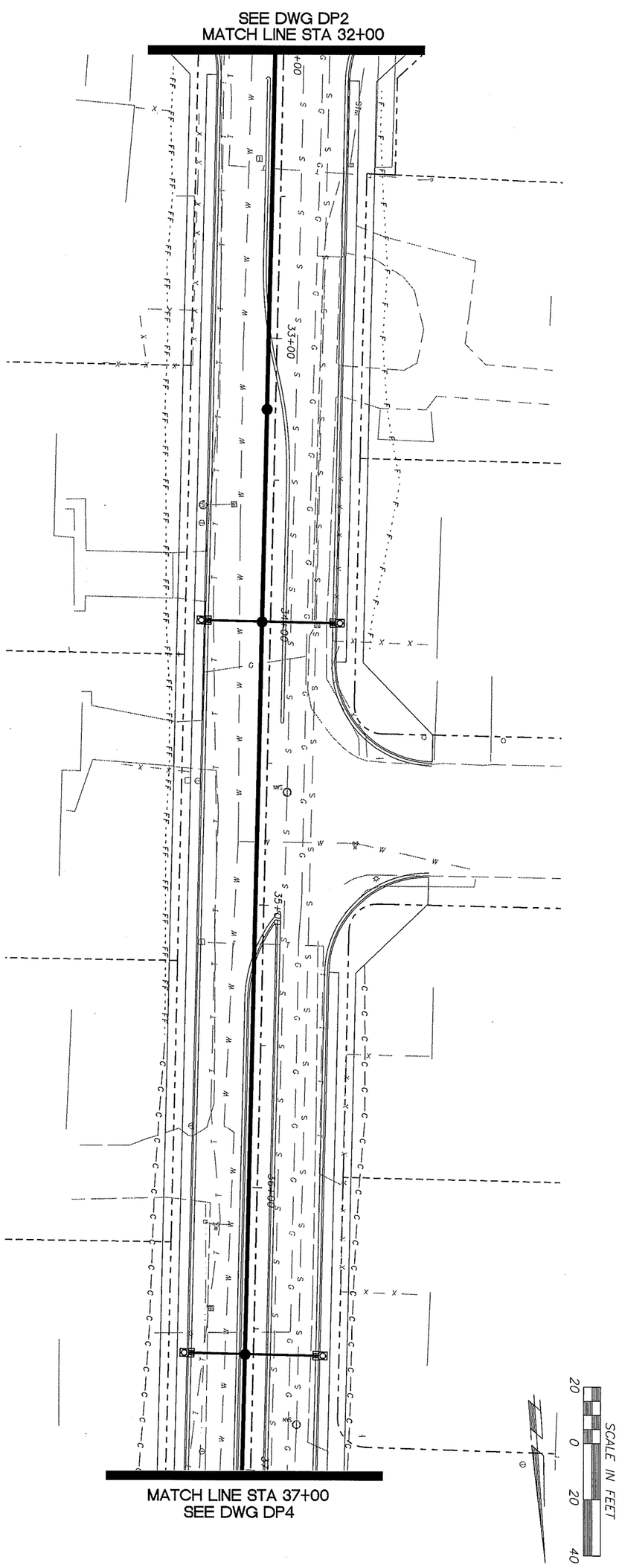
DRAWN	KB/RK
CRP	350822
HOR.	SEE SHEET
VERT.	SEE SHEET
DATE	09/15/05
DWG:	DP2
SHEET	X OF 61





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DESIGN SECTION

NE 94TH AVENUE
DRAINAGE PLAN (STA 32+00 TO STA 37+00)

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VERT.	SEE SHEET
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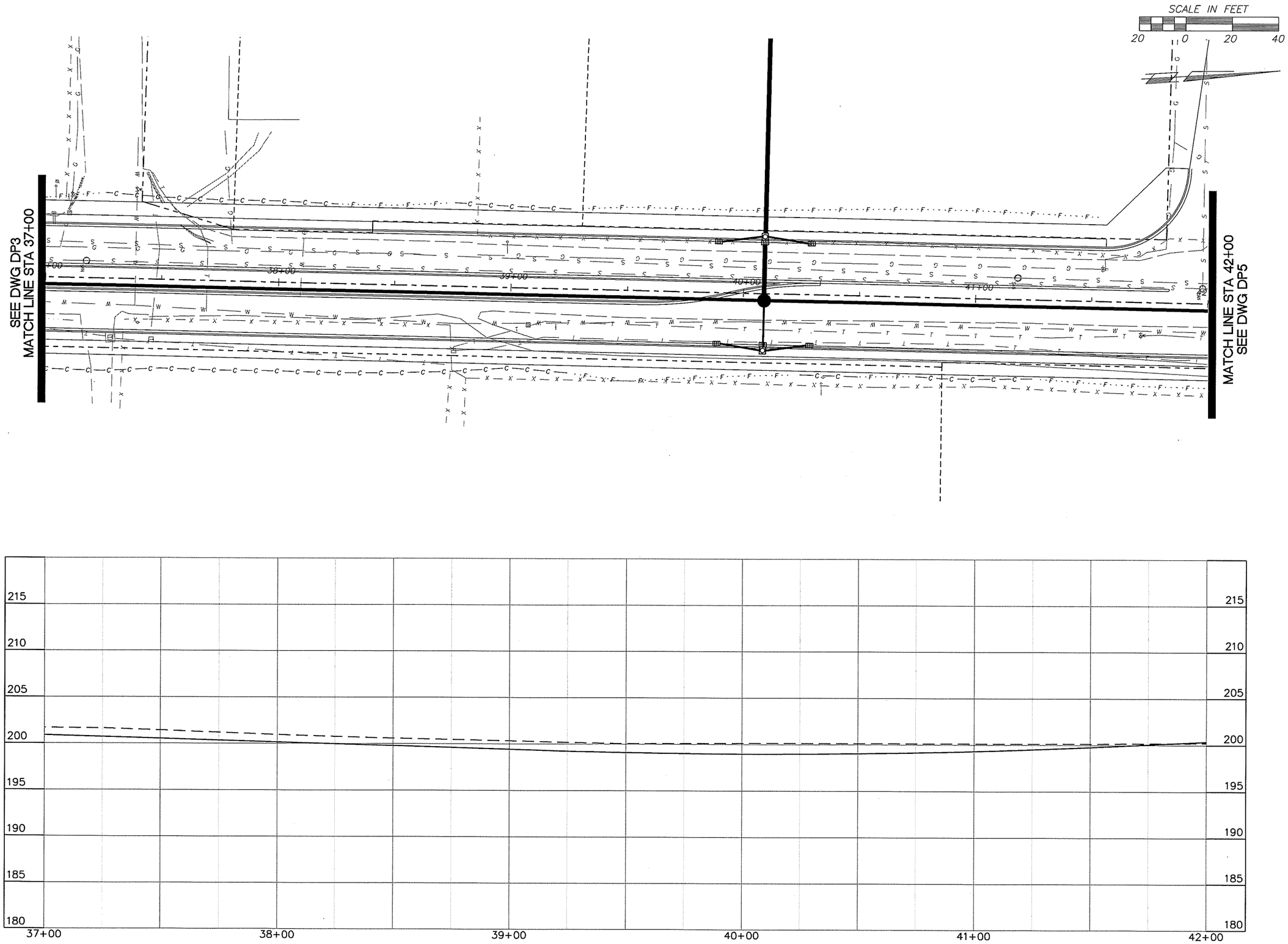
DWG:	DP3
SHEET	X OF 61



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DWG:	DP4
SHEET	X OF 61

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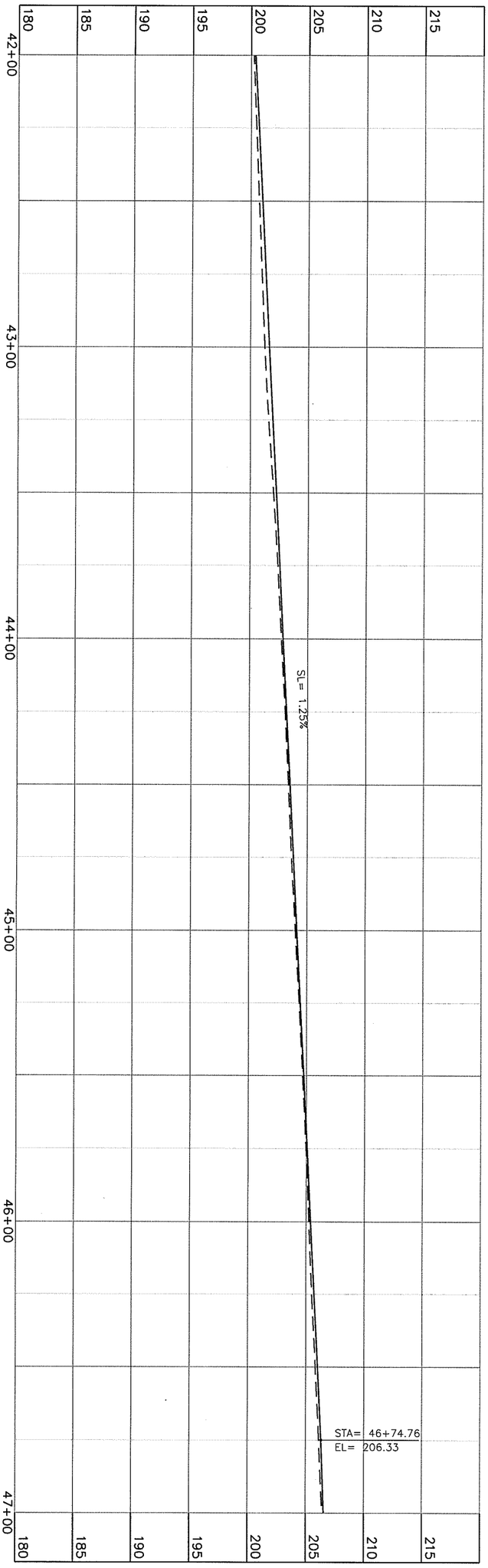

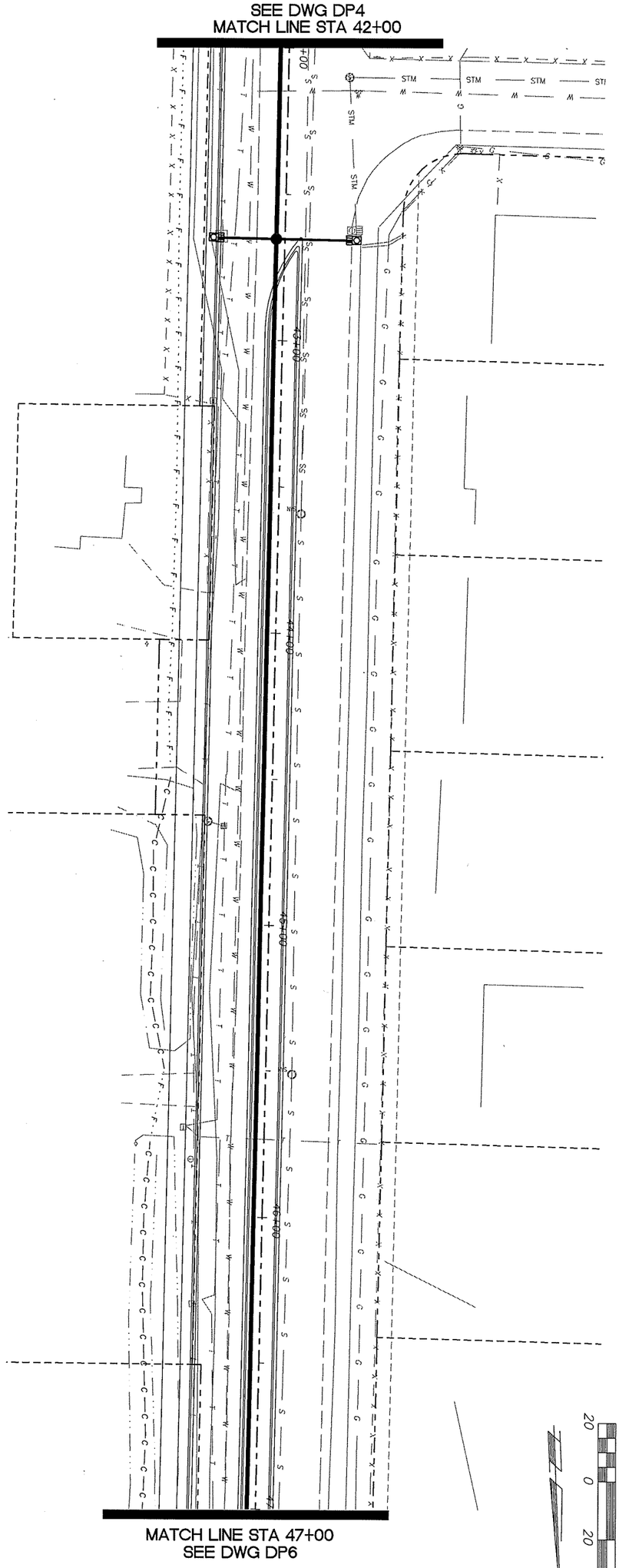

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VERT.	SEE SHEET
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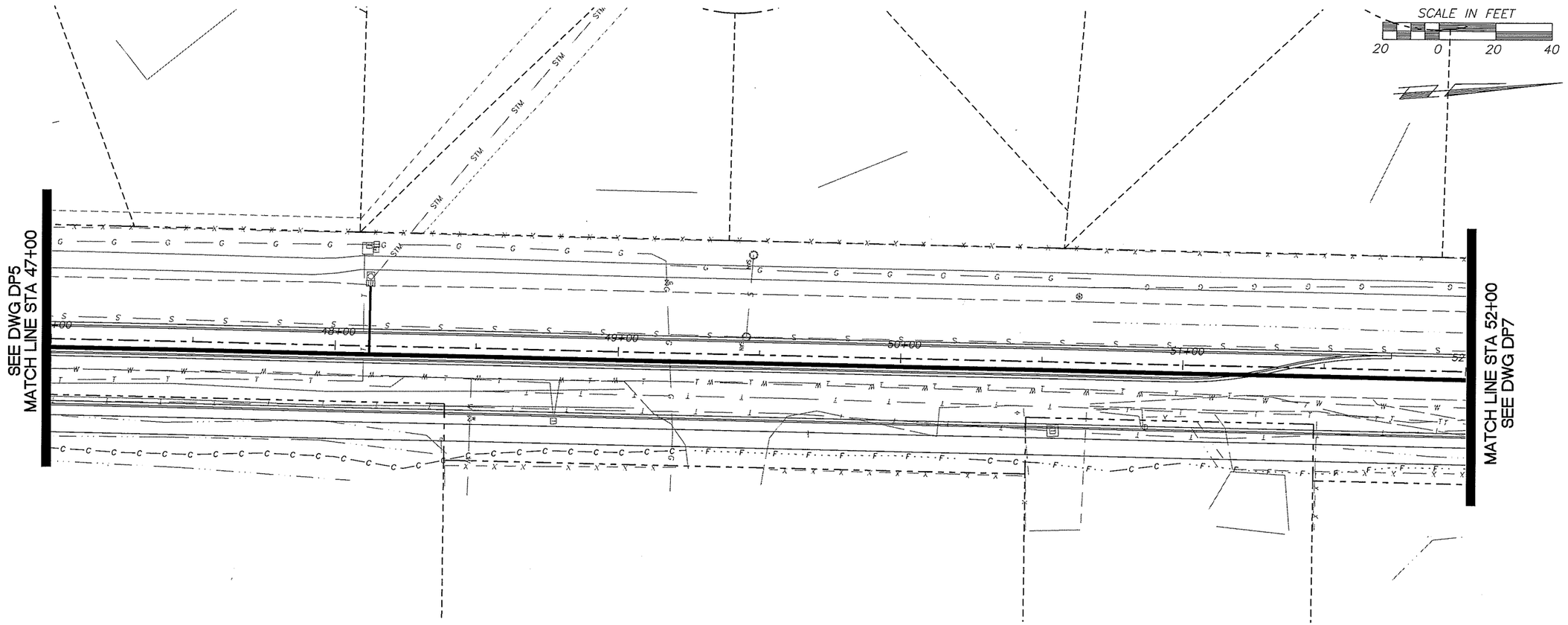
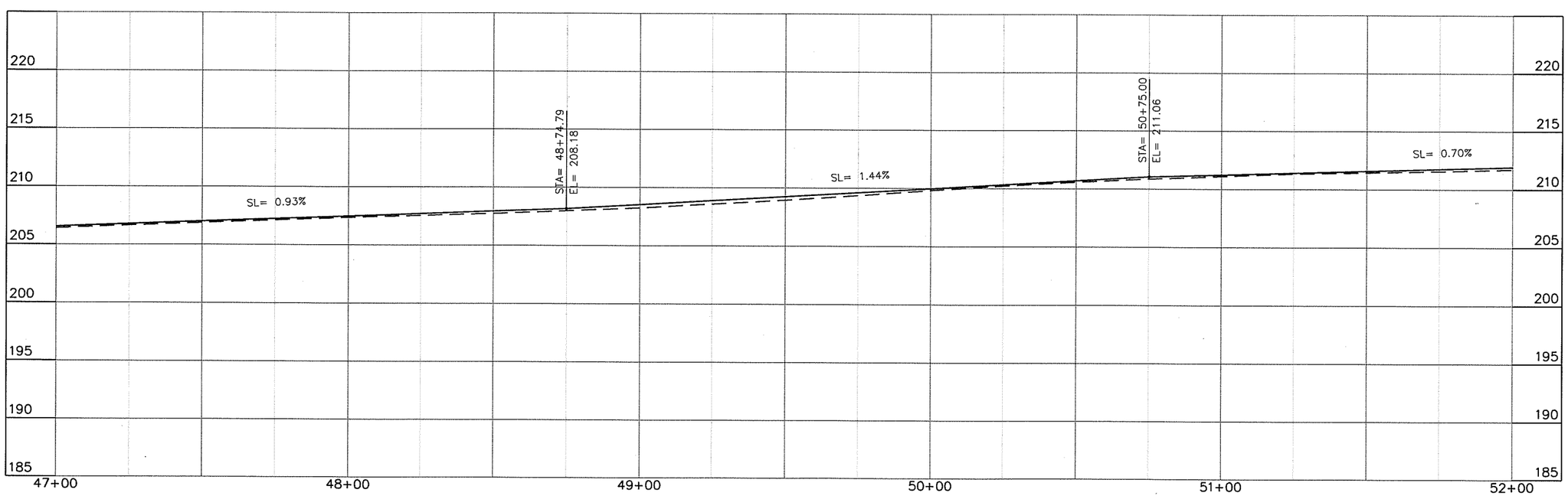
DWG:	DP5
SHEET	X OF 61





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DWG:	DP6
SHEET	X OF 61

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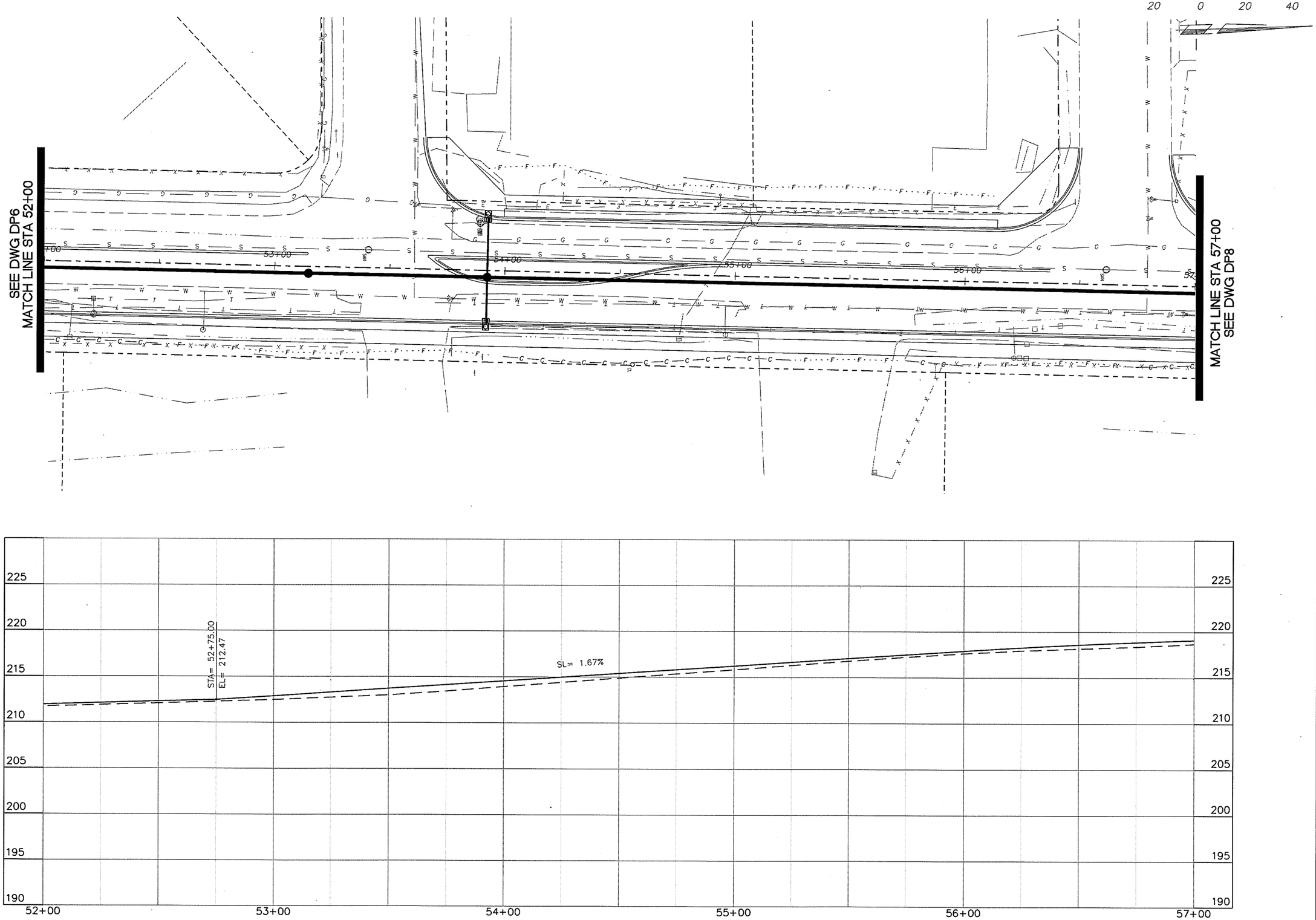

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DWG:	DP7
SHEET	X OF 61

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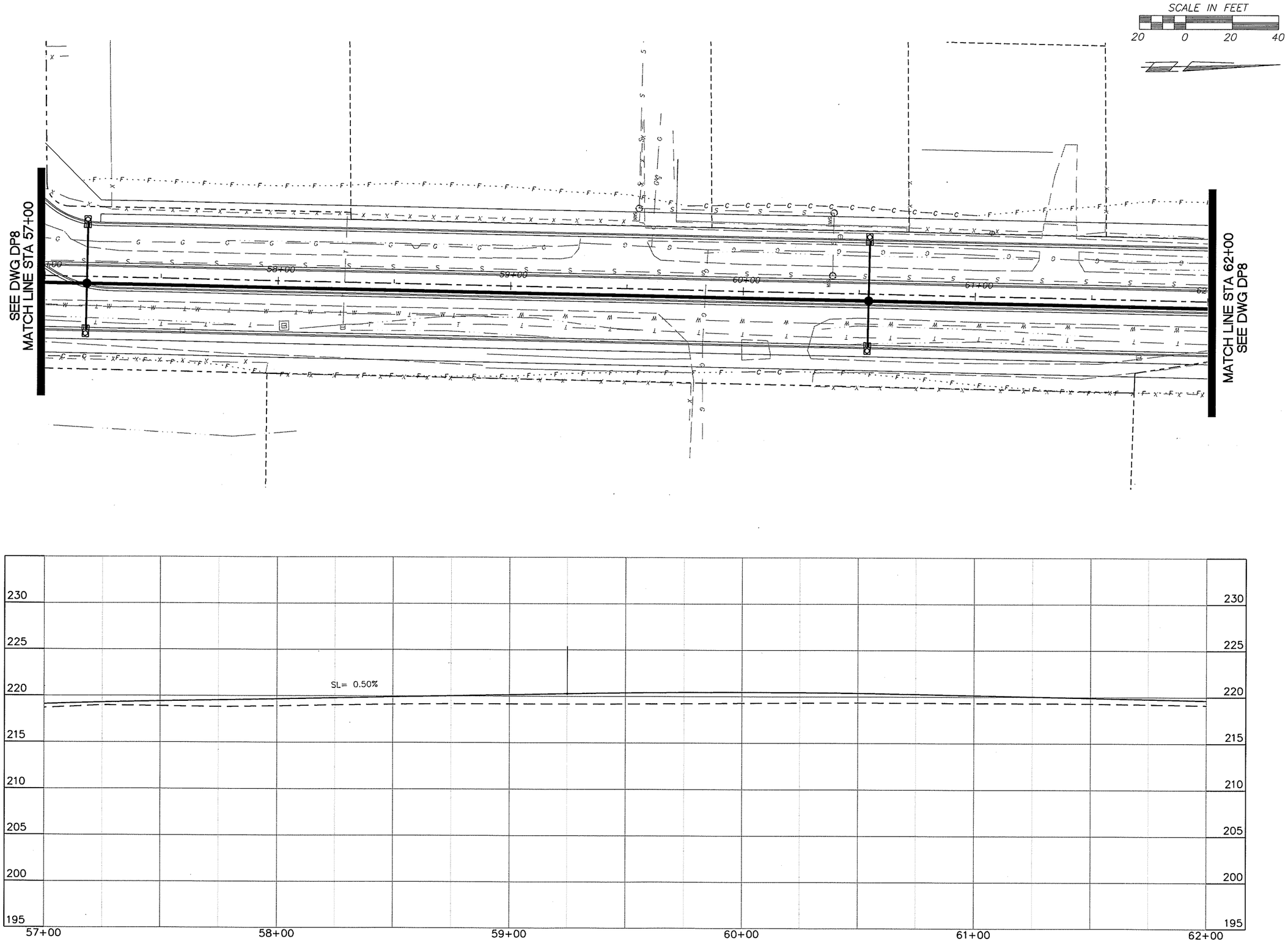

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SHEET	X OF 61

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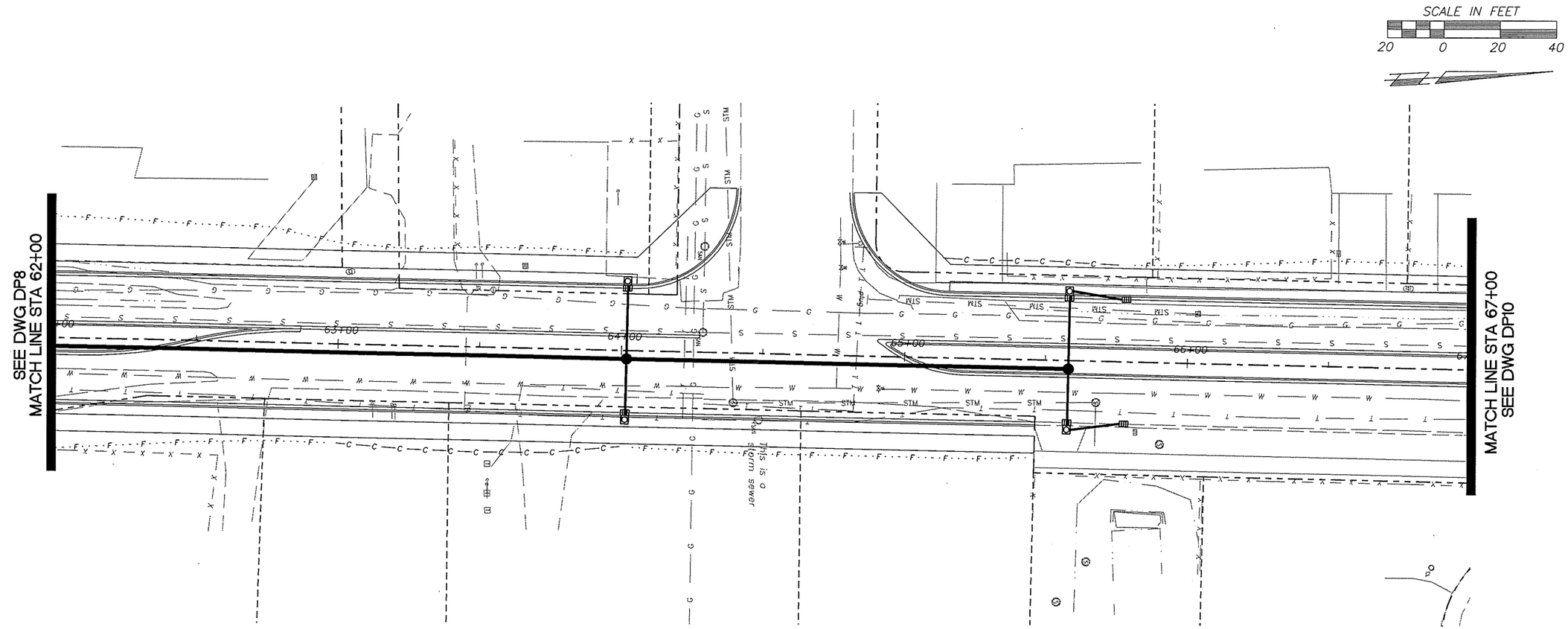

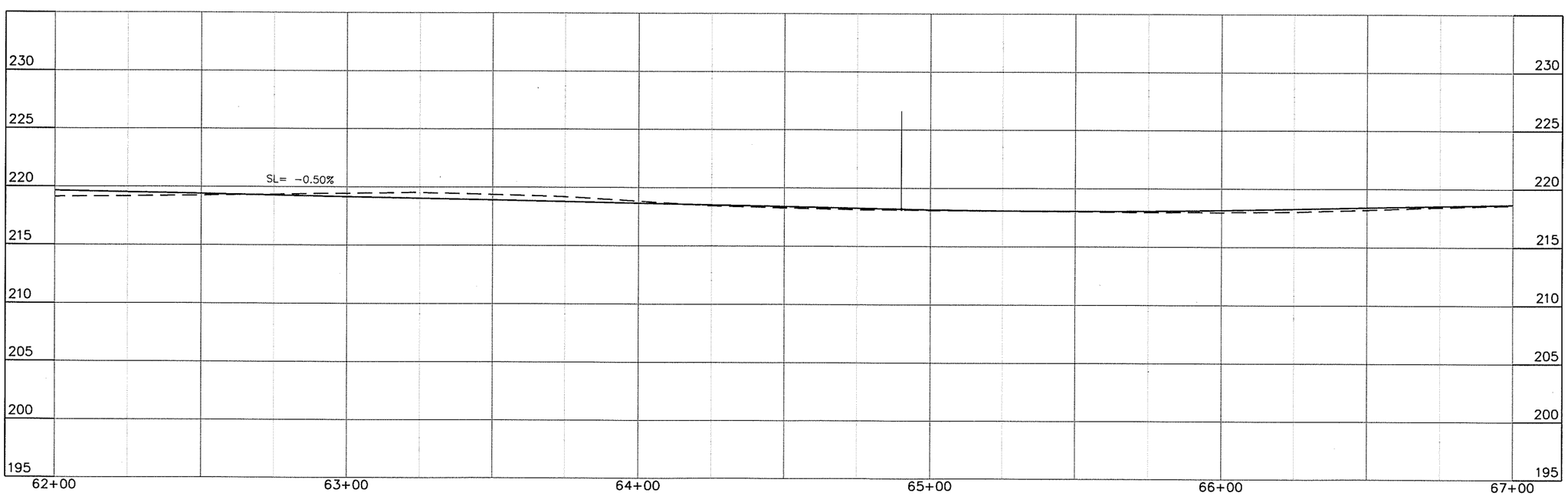

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SHEET	X OF 61

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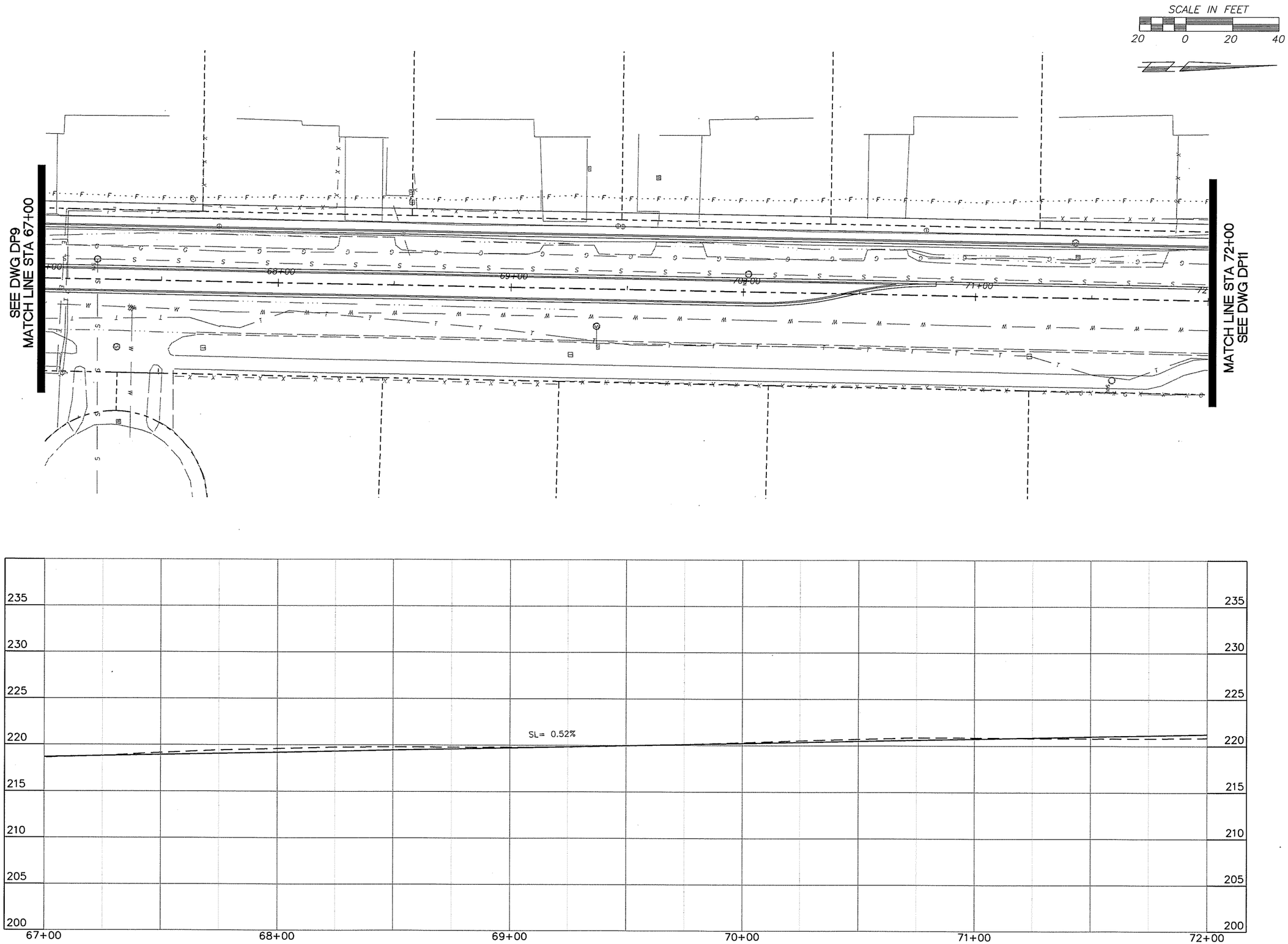

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DWG:	DP10
SHEET	X OF 61

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NE 94TH AVENUE

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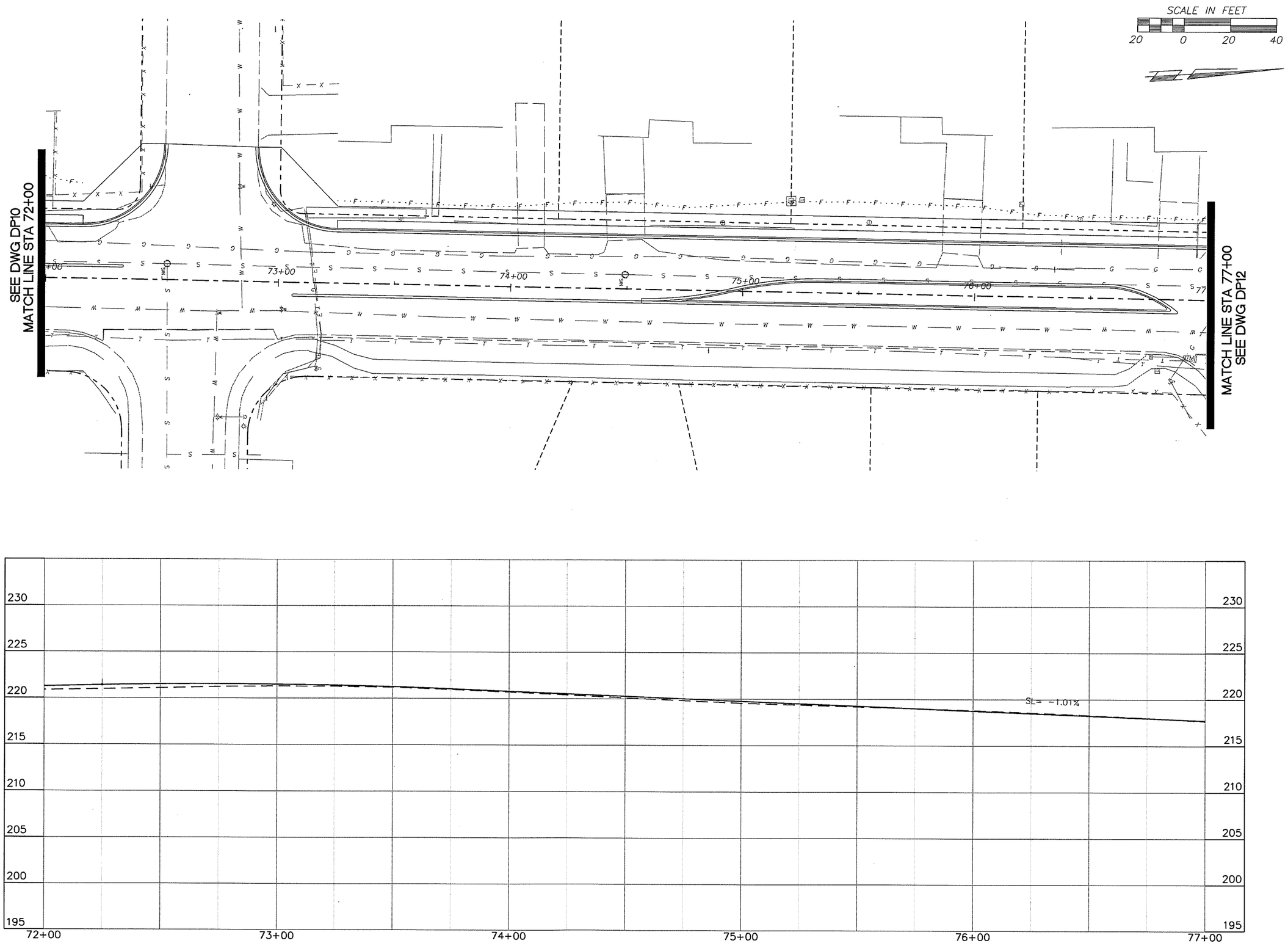

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SHEET	X OF 61

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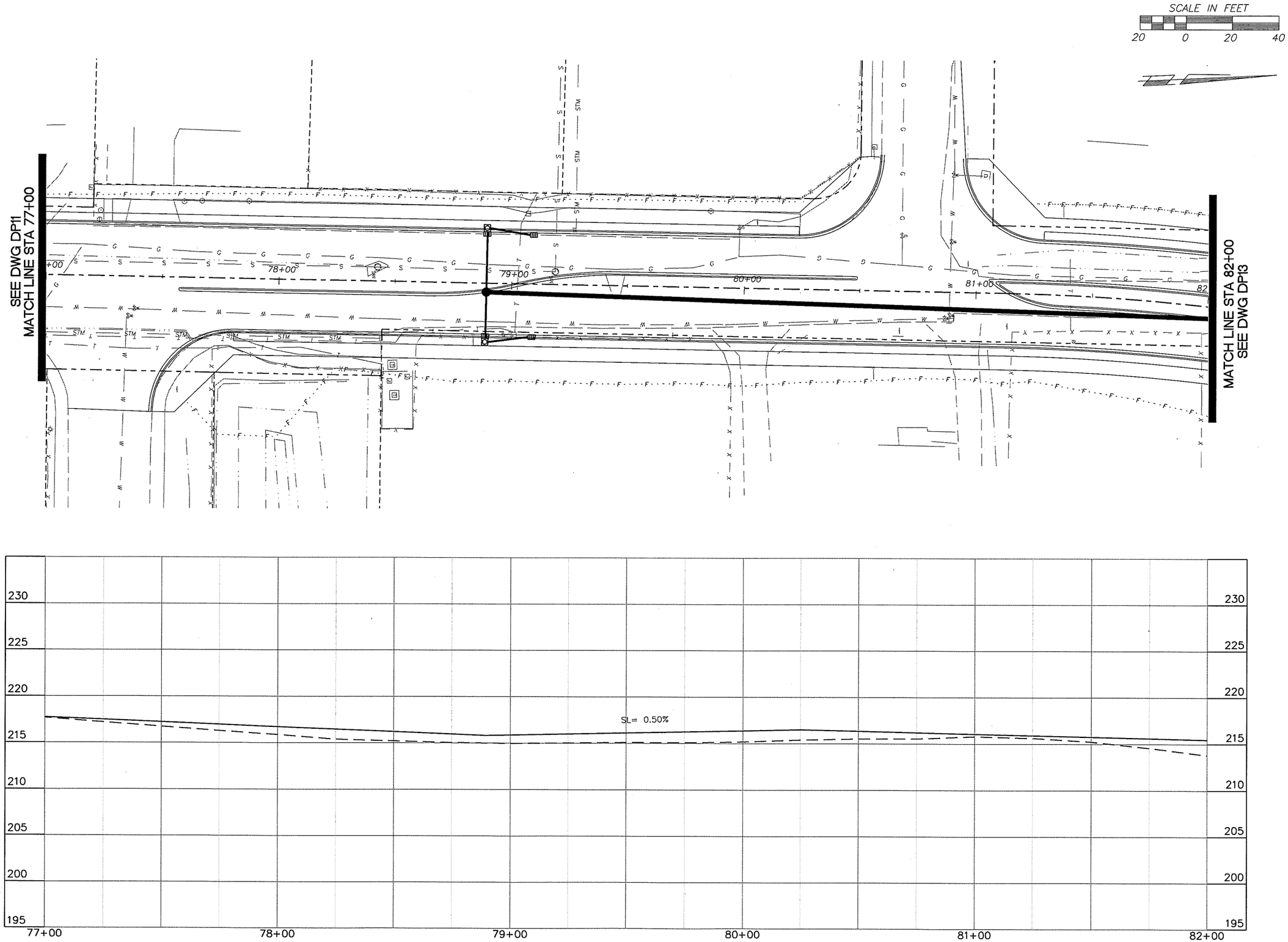

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SHEET	X OF 61

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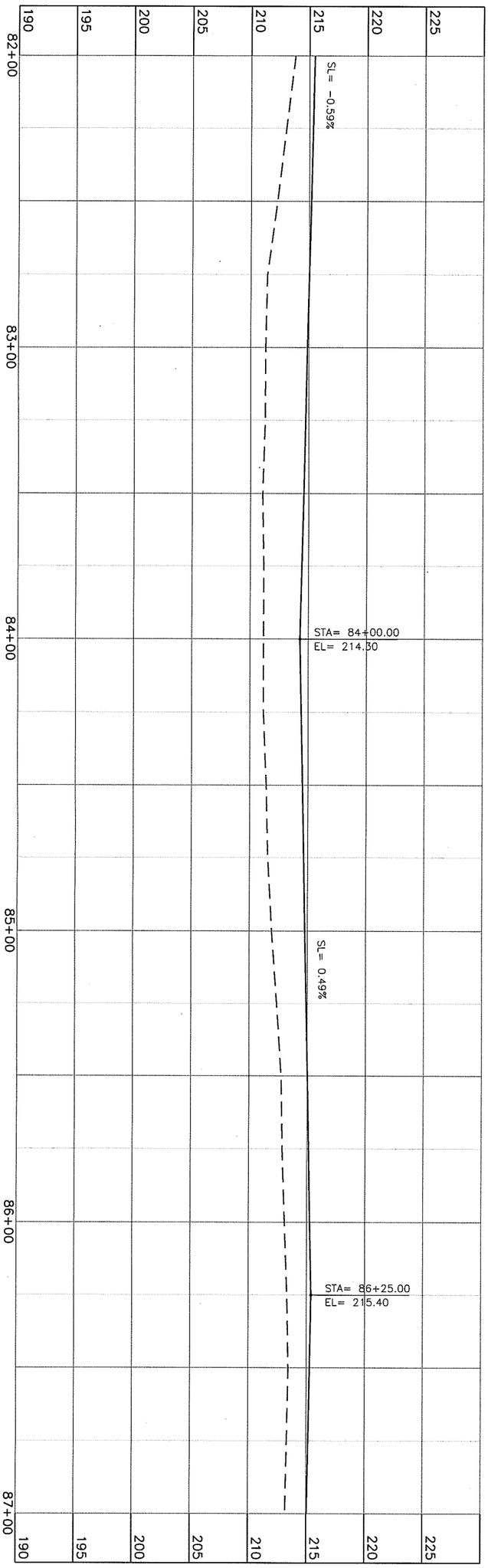

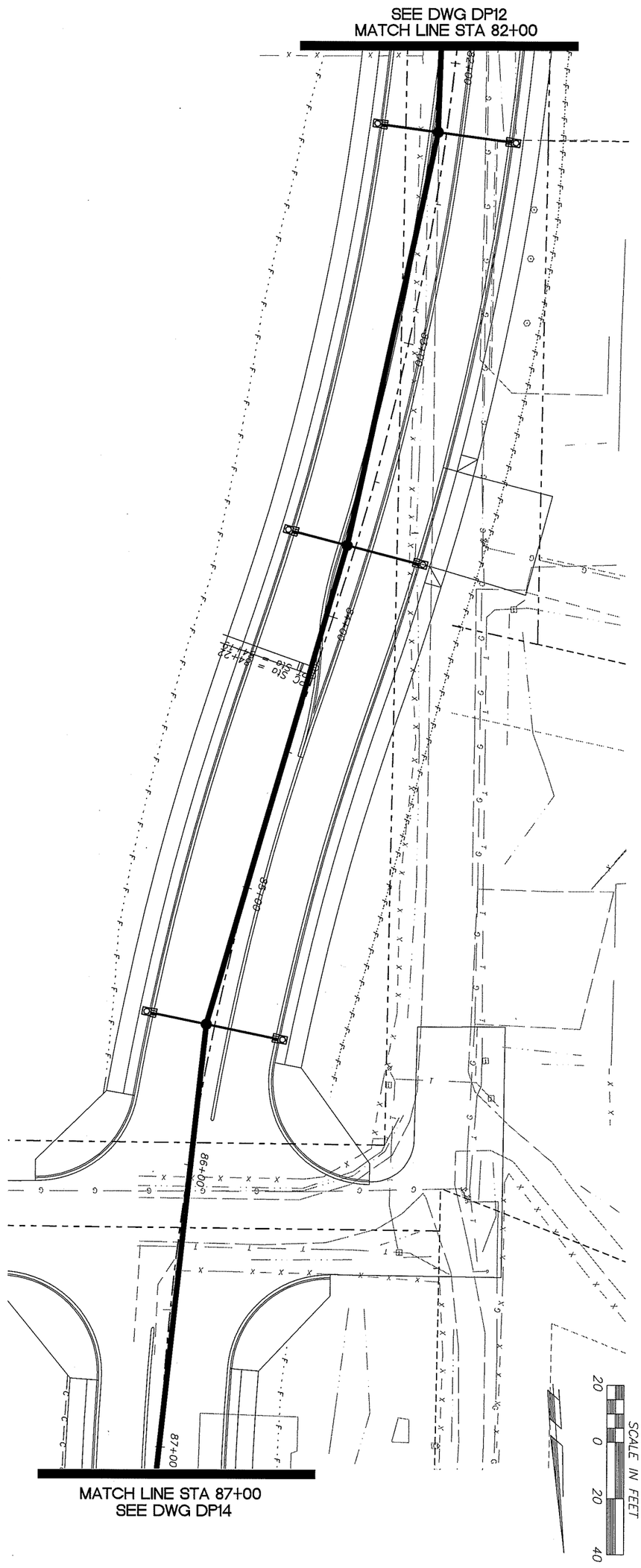

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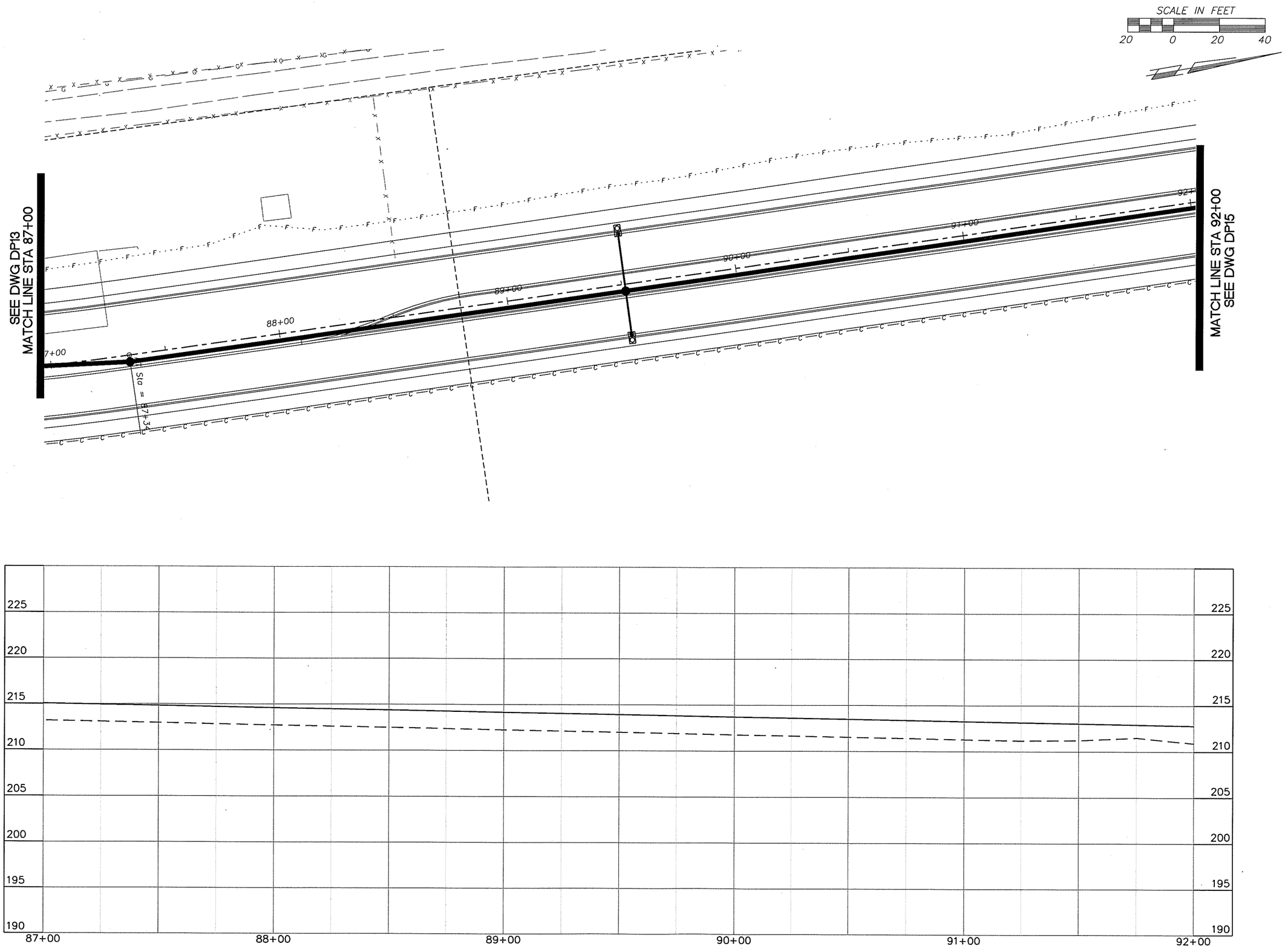
SHEET	X OF 61



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SHEET	X OF 61

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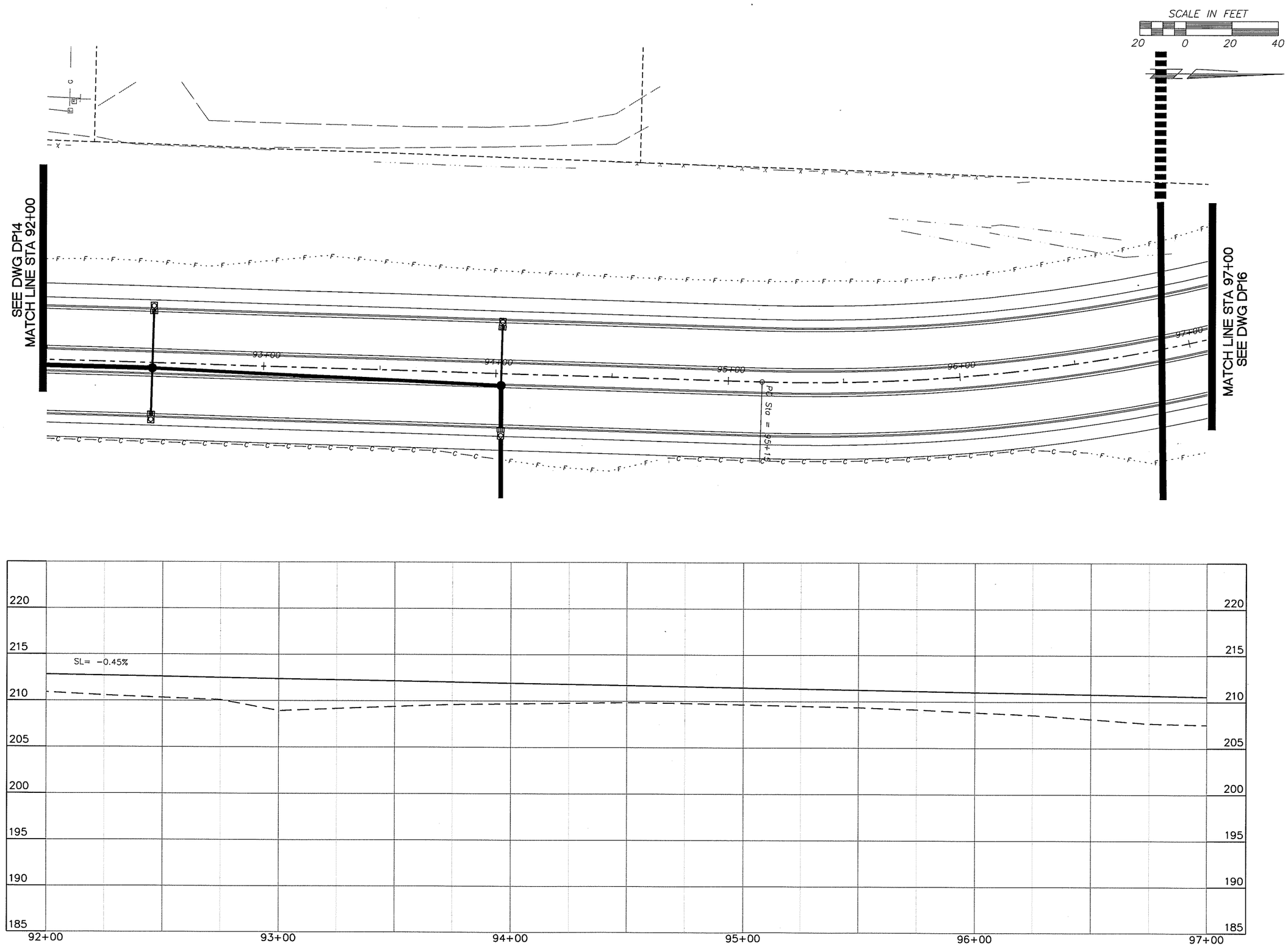

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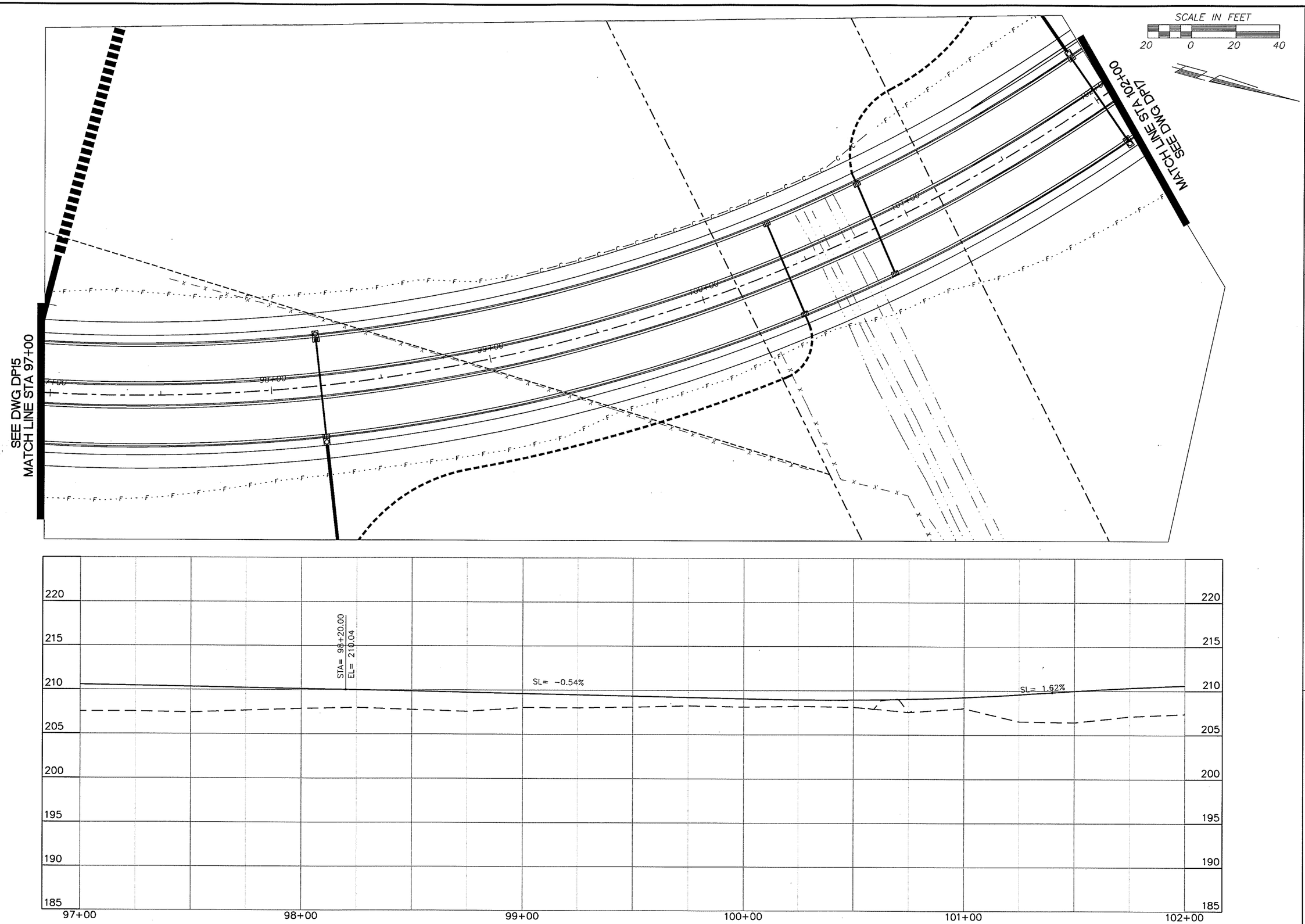

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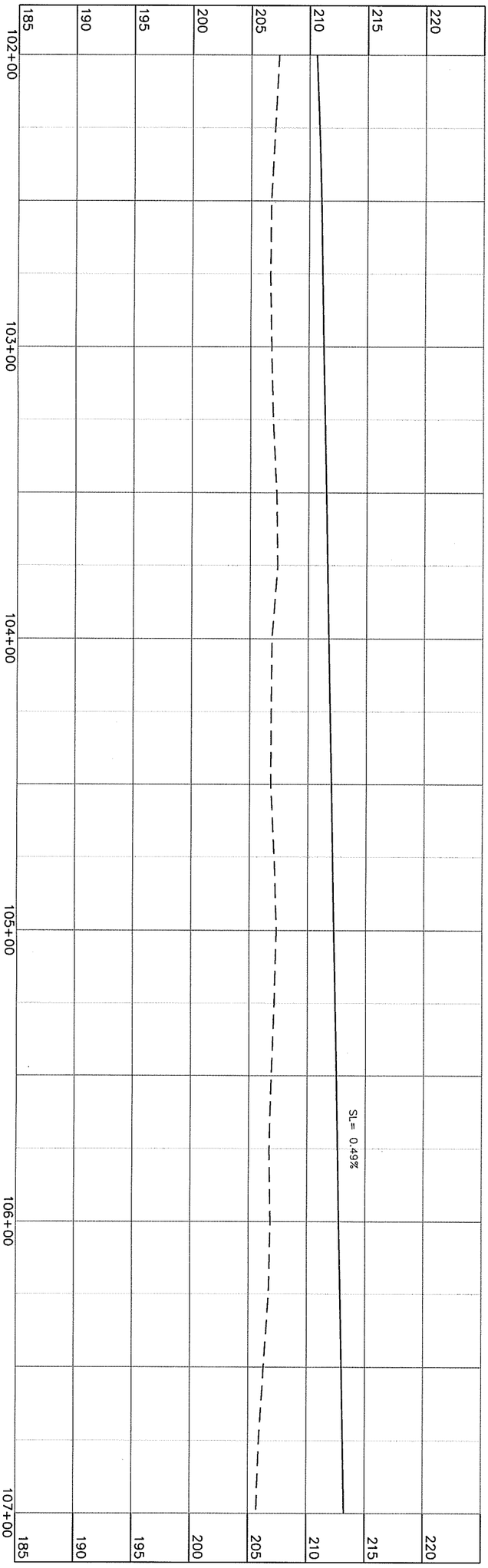

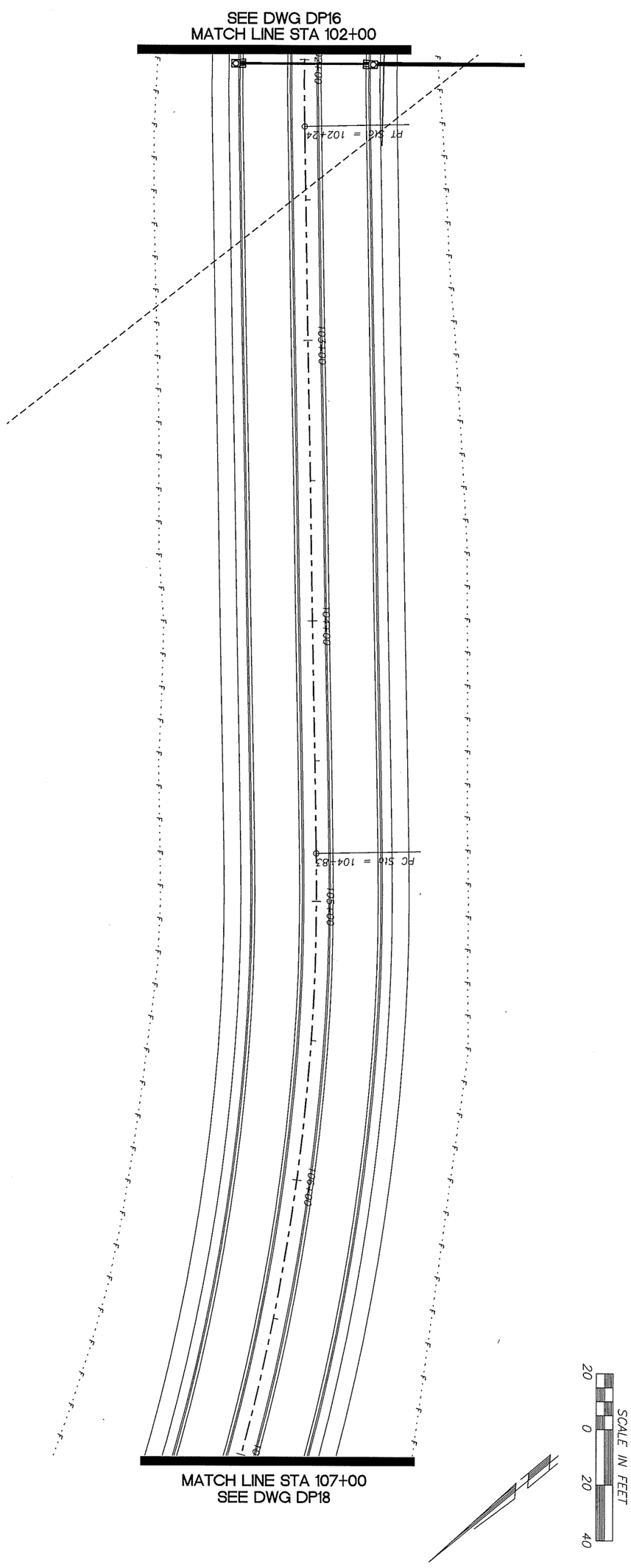

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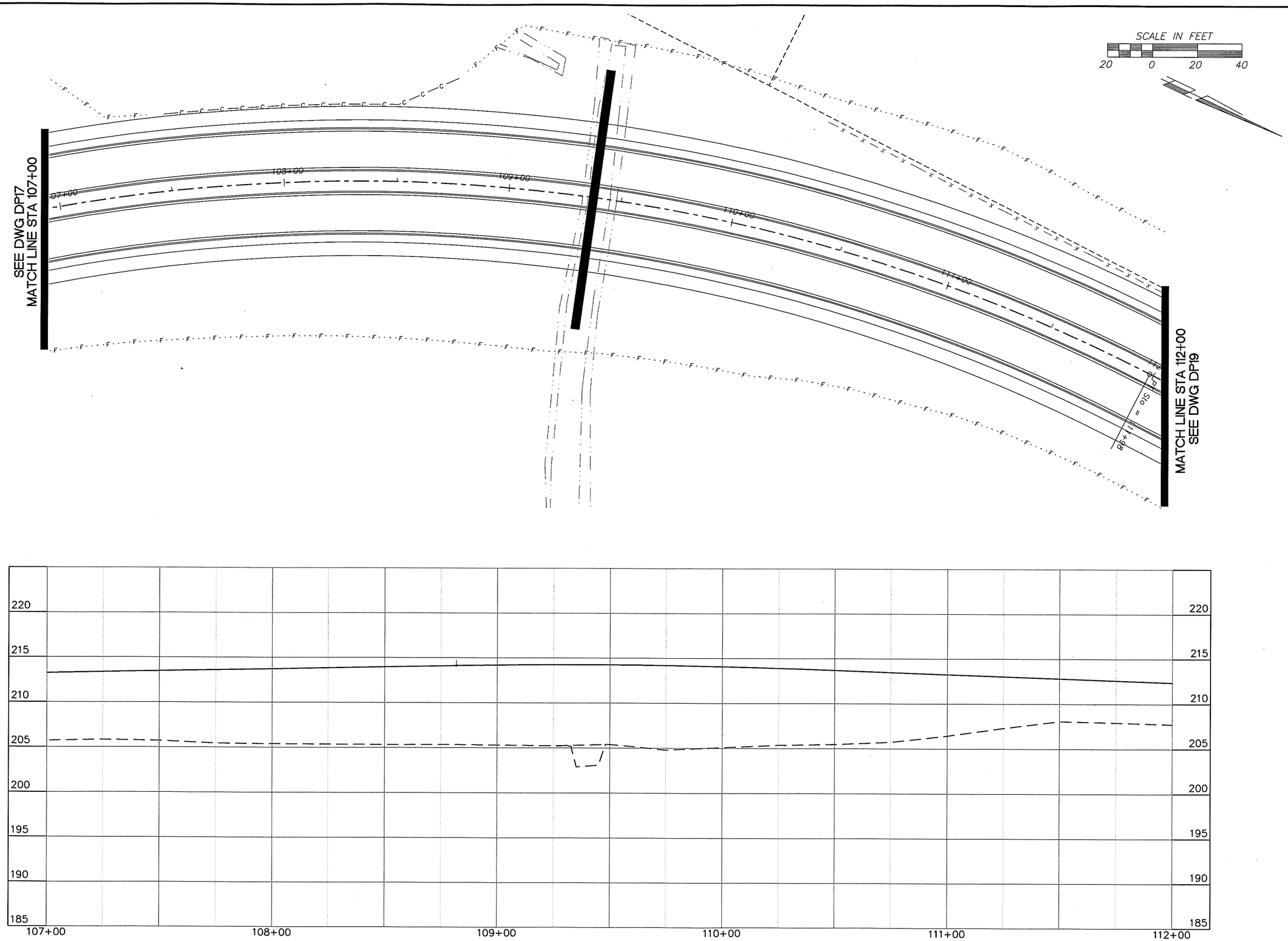
SHEET	X OF 61



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SHEET	X OF 61

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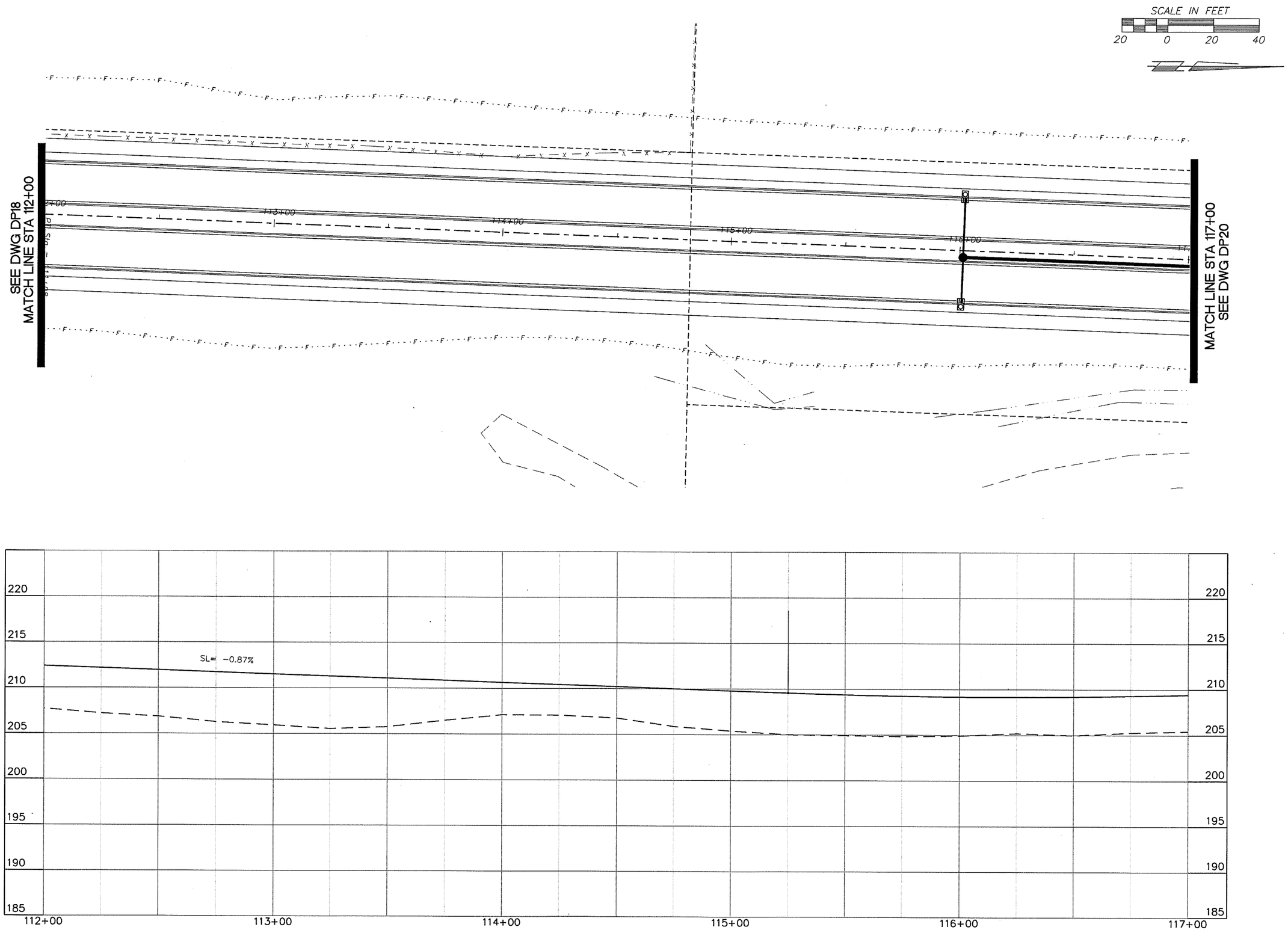

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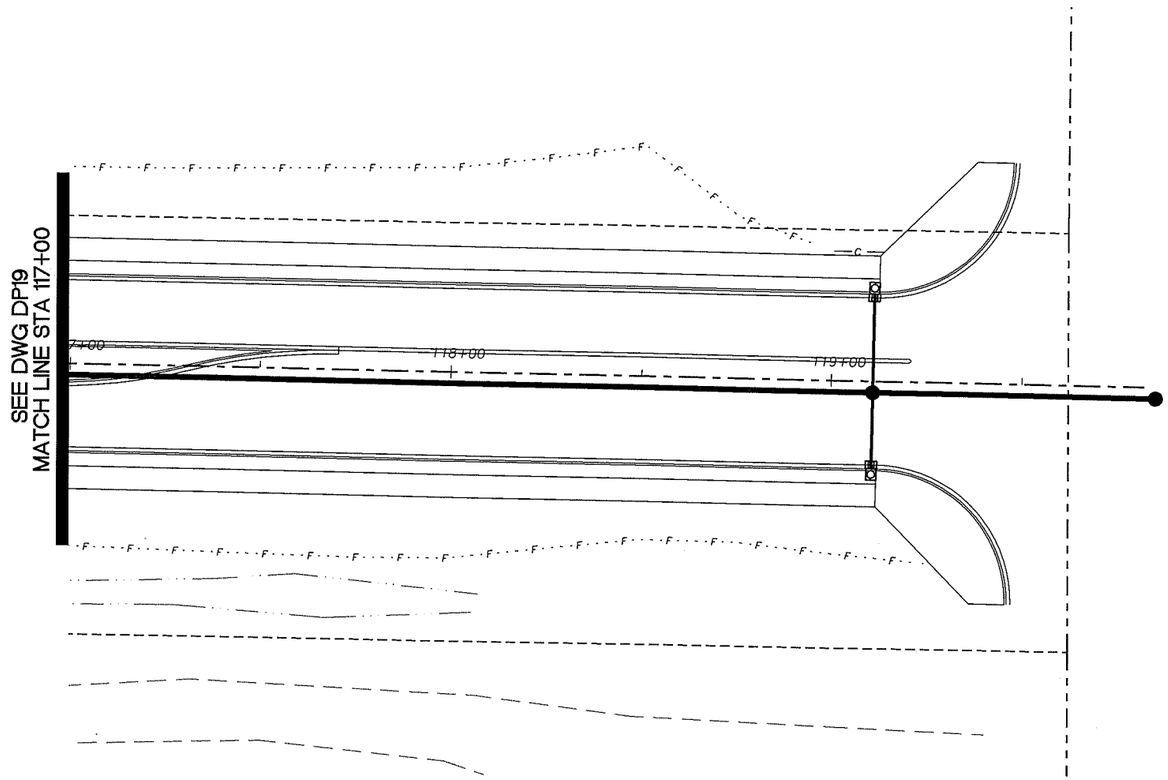

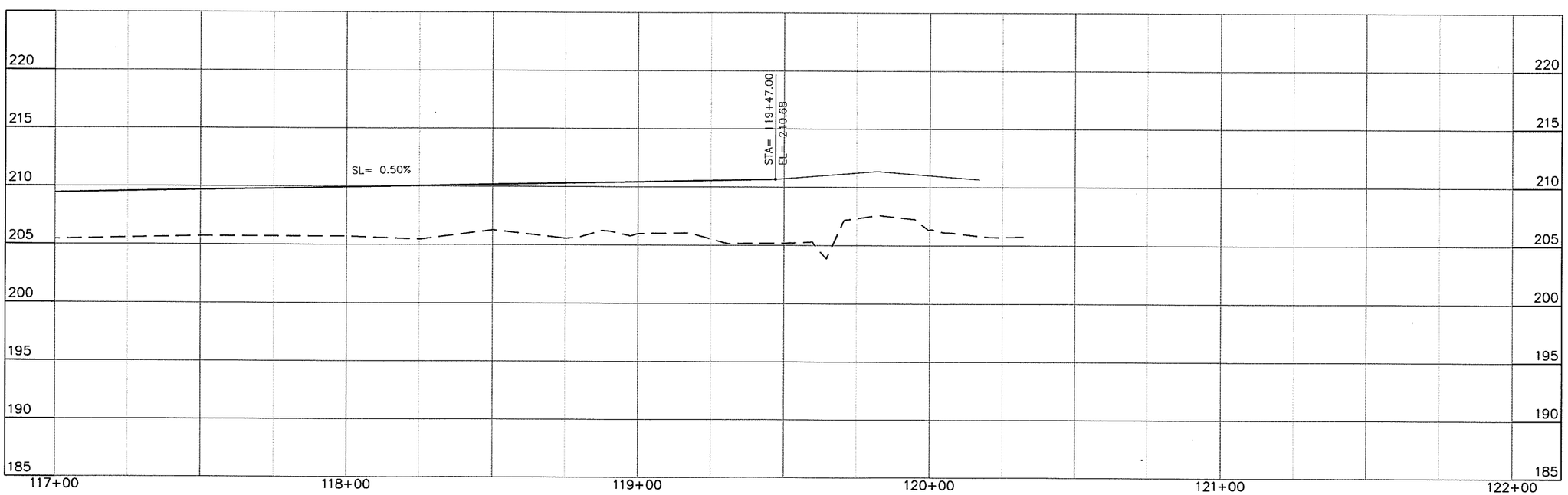

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VERT.	SEE SHEET
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NE 94TH AVENUE

DRAINAGE PLAN (STA 117+00 TO EOP)

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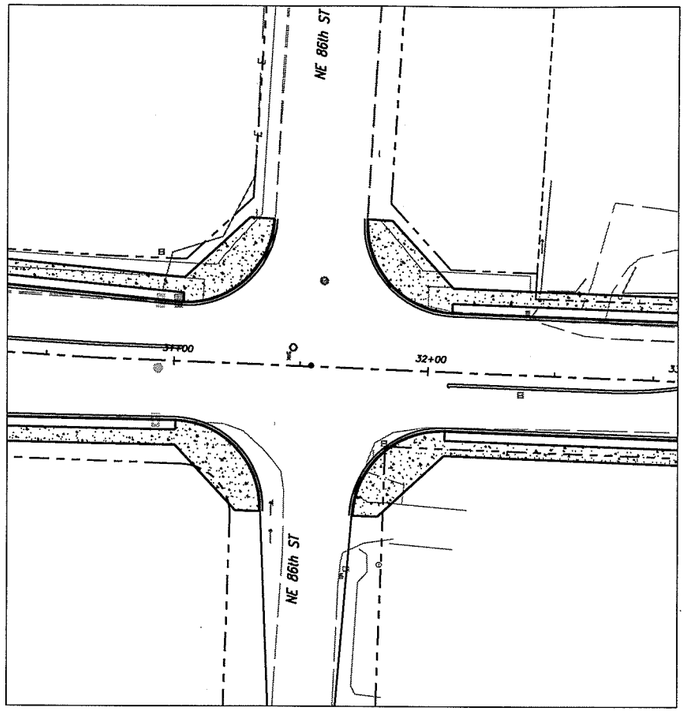

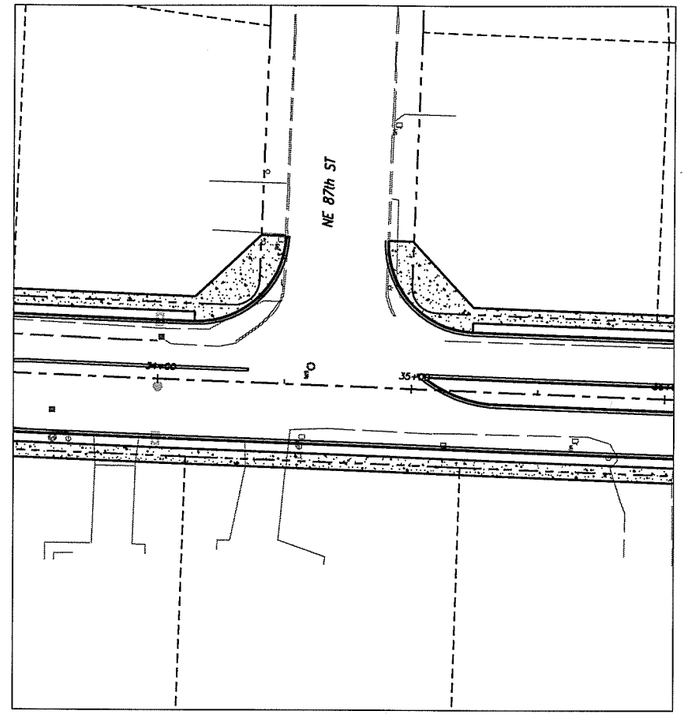

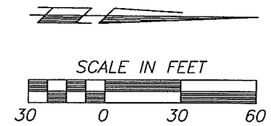

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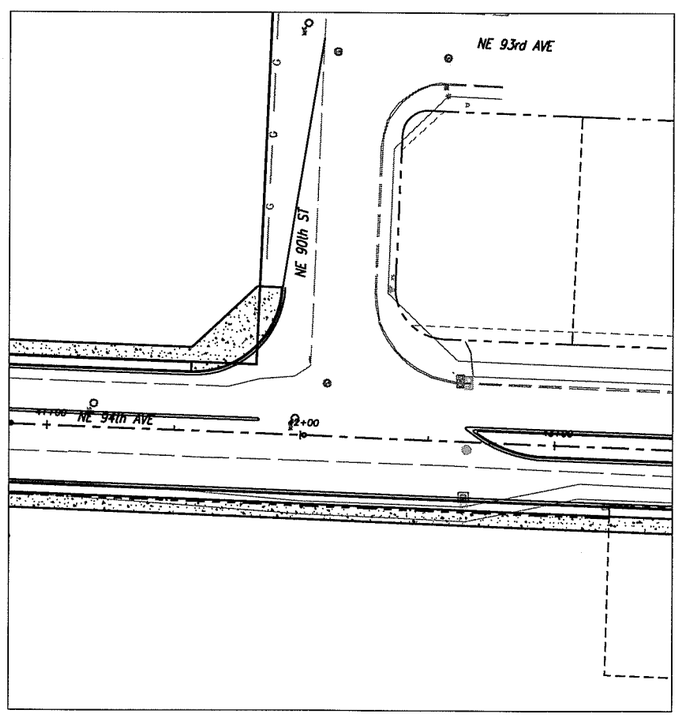

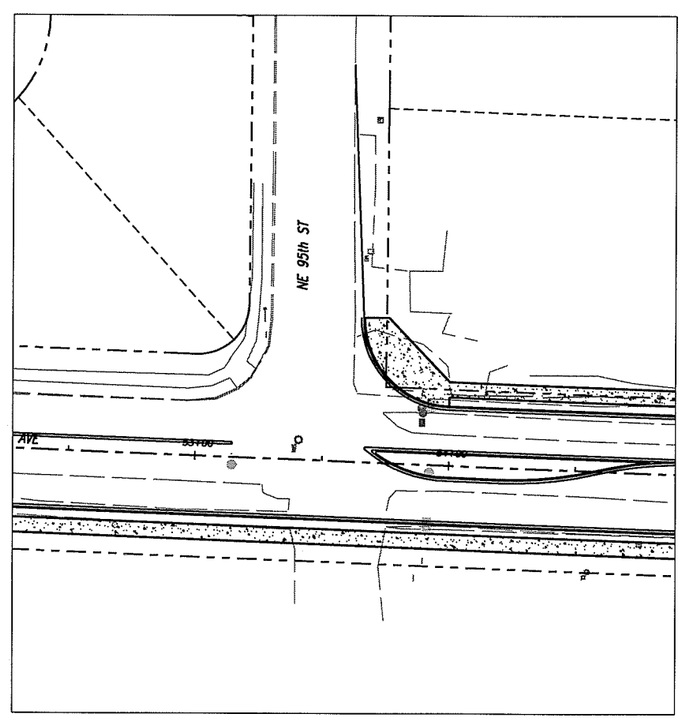

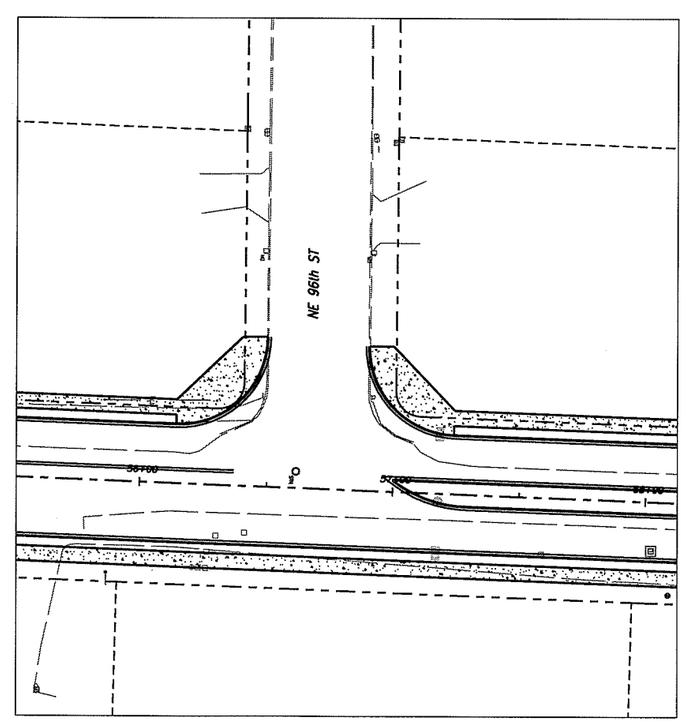

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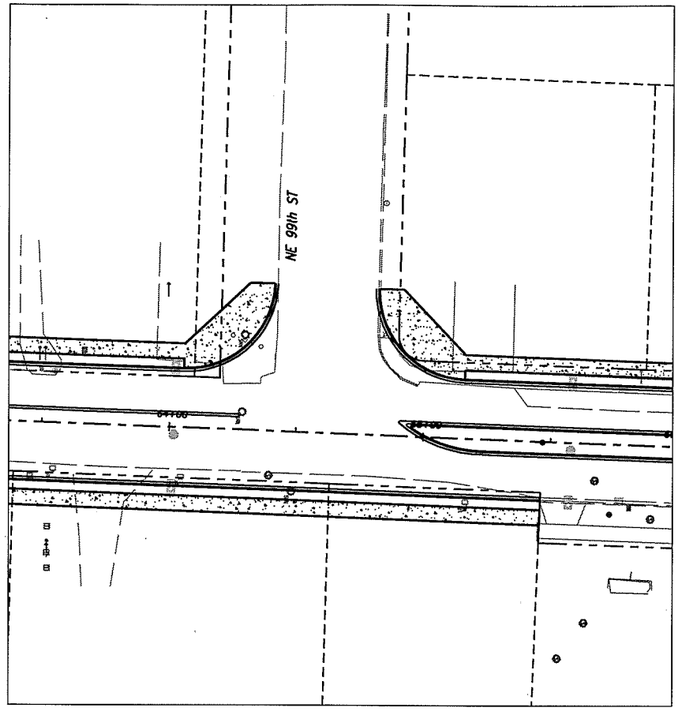

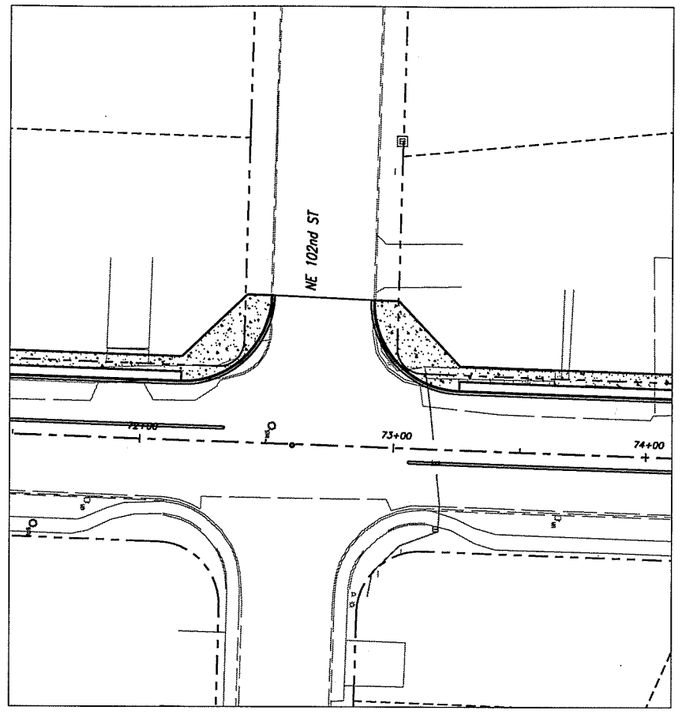

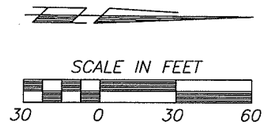

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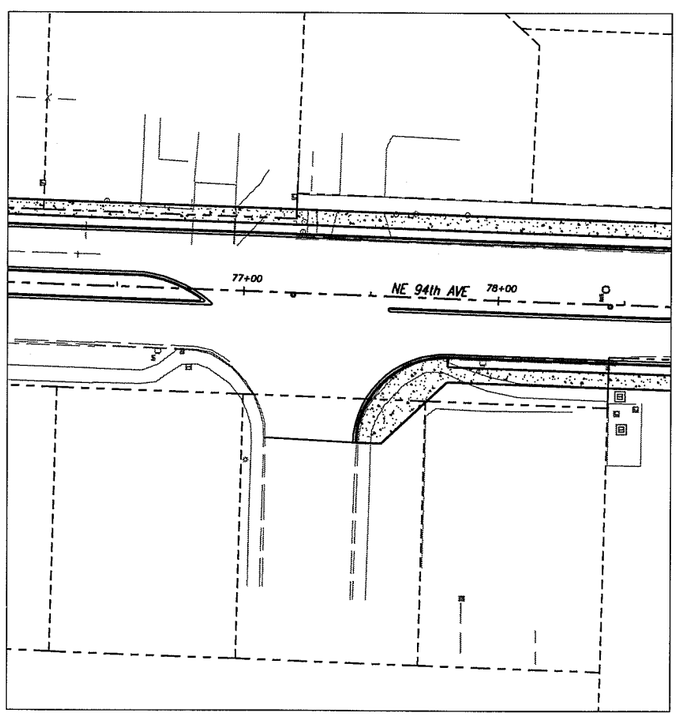

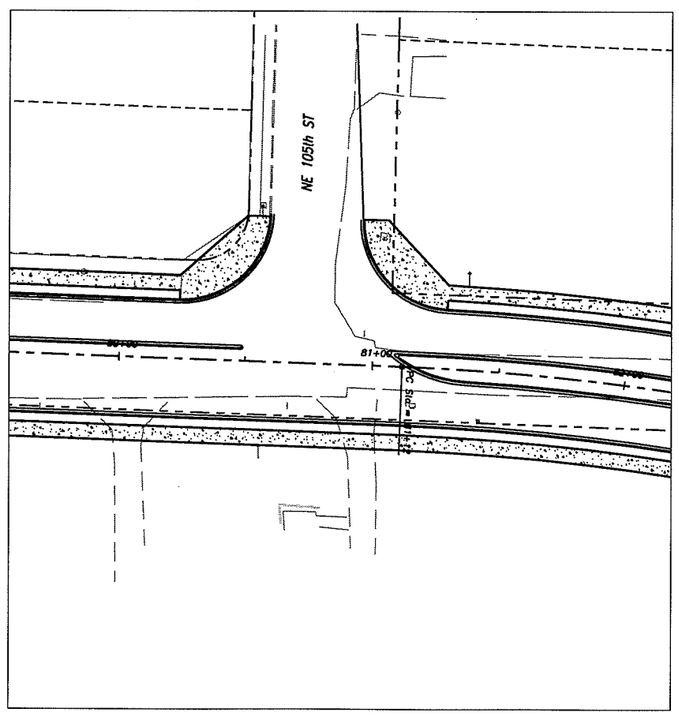

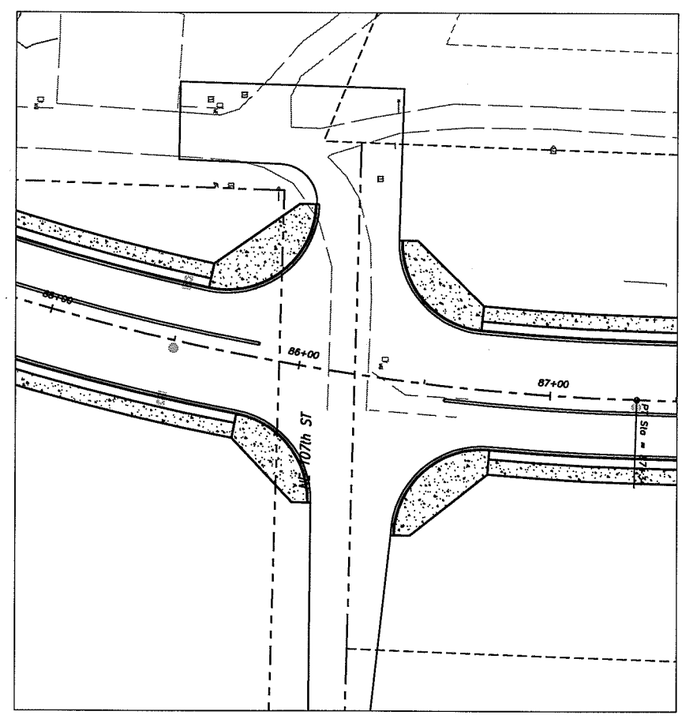

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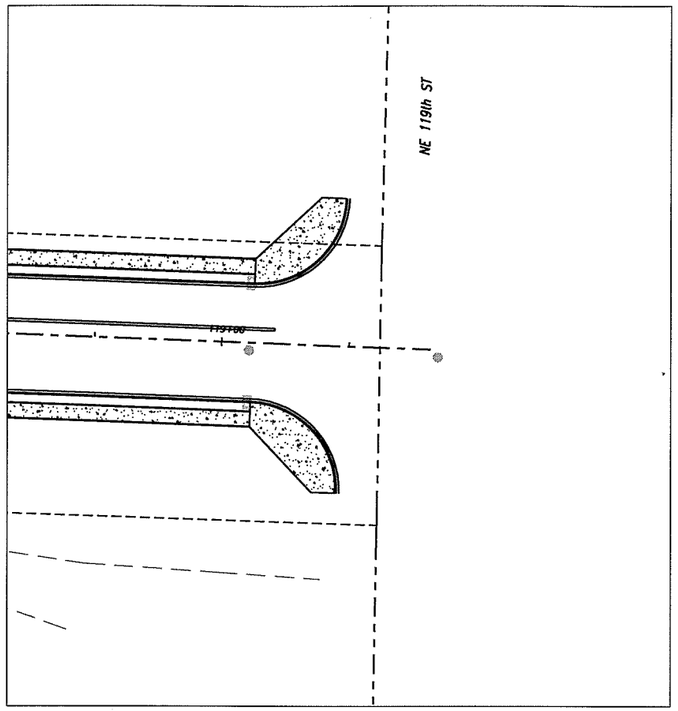

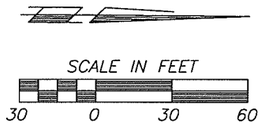

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