| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | A.1 |

# U. S. DEPARTMENT OF THE INTERIOR
# NATIONAL PARK SERVICE
# OLYMPIC NATIONAL PARK

PLANS FOR PROPOSED PROJECT

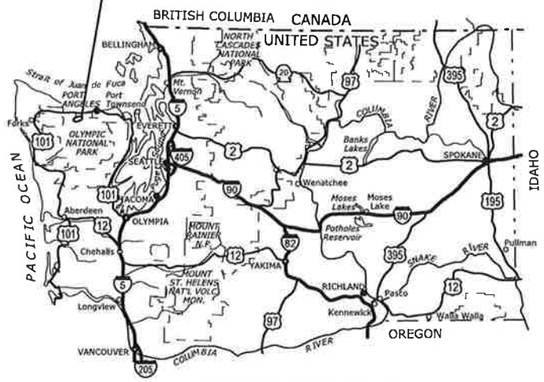
WA NPS OLYM 2017(1)

# SPRUCE RAILROAD TRAIL
# SEGMENT B

CLALLAM COUNTY
WASHINGTON

LENGTH 1.86 MILES

*Project Location*




**WASHINGTON KEY MAP**

WORLD HERITAGE SITE

**TYPE OF CONSTRUCTION:**

*Excavation, embankment, drainage, aggregate base, structure, retaining wall and paving*

**DESIGN STANDARDS:**

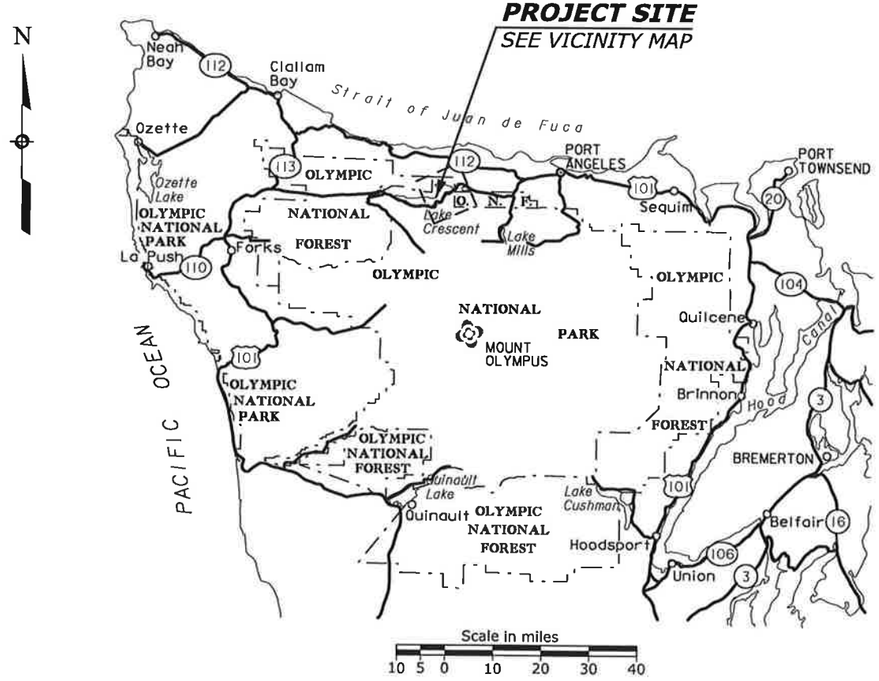
*AASHTO Guide for the Development of Bicycle Facilities*

*LRFD Guide Specification for the Design of Pedestrian Bridges*

**SPECIFICATION:**

*Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14*

***PROJECT SITE***
*SEE VICINITY MAP*




**SECTION INDEX**


A. GENERAL INFORMATION
B. SUMMARY OF QUANTITIES
C. TYPICAL SECTIONS
D. PLAN
E. SOIL EROSION AND SEDIMENT CONTROL
F. DRAINAGE
G. TUNNEL
H. MSE WALL
I. STRUCTURES
J. ROCKFALL MITIGATION
K. TEMPORARY TRAFFIC CONTROL PLAN


PLANS PREPARED BY

AECOM

***APPROVED:***

_____ DATE _____
Chief of Engineering,
Western Federal Lands Highway Division

_____ DATE _____
Superintendent,
Olympic National Park

| PROJECT MANAGER |
|---|
| K. LOFTSGAARDEN |

NPS Drwg. No.

J:\DCS\Projects\TRN\60547135_WFLSpruce\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_aa.dgn [US_Sur2D]
5 May 2019 5:55 PM

## INDEX TO SHEETS


**A. GENERAL INFORMATION**

A.1 TITLE SHEET
A.2 INDEX TO SHEETS
A.3 PLAN SYMBOLS AND ABBREVIATIONS
A.4 VICINITY MAP

**B. SUMMARY OF QUANTITIES**

B.1-2 SUMMARY OF QUANTITIES-SCHEDULE A
B.3 SUMMARY OF QUANTITIES-SCHEDULE B

**C. TYPICAL SECTIONS**

C.1-2 TYPICAL SECTIONS

**D. PLAN**

D.1-9 PLAN AND PROFILE / TABULATION OF PLAN AND PROFILE QUANTITIES
D.10 LINE GRAPH
D.11 PARKING LOT PAVING PLAN
D.12-13 SURVEY CONTROL

**E. SOIL EROSION AND SEDIMENT CONTROL**

E.1-5 EROSION CONTROL PLAN / TABULATION OF EROSION CONTROL QUANTITIES
E.6 SILT FENCE STANDARD DETAIL
E.7 FIBER ROLL STANDARD DETAIL
E.8 LANDSCAPE LOG SLOPE STABILIZATION

**F. DRAINAGE**

F.1 TABULATION OF DRAINAGE QUANTITIES
F.2-6 MINOR CULVERTS
F.7 PLACED RIPRAP AT CULVERT OUTLETS STANDARD DETAIL
F.8 METAL AND PLASTIC PIPE CULVERT BEDDING STANDARD DETAIL
F.9 PLASTIC PIPE CULVERT STANDARD DETAIL

**G. TUNNEL**

G.1 TUNNEL PLAN / TABULATION OF TUNNEL QUANTITIES
G.2 TUNNEL INTERIOR SECTIONS
G.3 TUNNEL DRAINAGE
G.4 TIMBER FACADE ELEVATION AND SECTION
G.5 ROCK BOLT DETAIL

**H. MSE WALL**

H.1 TABULATION OF MSE WALL QUANTITIES
H.2 MSE WALL TYPICAL SECTION
H.3-3.1 MSE WALL PROFILES AND TABLES
H.5 MSE WALL (GEOGRID) DETAILS



## INDEX TO SHEETS



**I. STRUCTURES**

I.1 PLAN & ELEVATION
I.2 GENERAL NOTES
I.3 *NOT USED*
I.4 FOUNDATION LAYOUT
I.5 MICROPILE DETAILS
I.6 ABUTMENT LAYOUT
I.7 ABUTMENT DETAILS
I.8 TYPICAL SECTION
I.9 MISCELLANOUS DETAILS
I.10 RAILING DETAILS
I.11 REBAR LIST (1 OF 1)

**J. ROCKFALL MITIGATION**

J.1-40 ROCKFALL MITIGATION PLANS
J.41-50 ROCKFALL MITIGATION DETAILS

**K. TEMPORARY TRAFFIC CONTROL PLAN**

K.1 TABULATION OF TEMPORARY TRAFFIC CONTROL QUANTITIES
K.2 TEMPORARY TRAFFIC CONTROL PLAN
K.3 TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION WOOD POSTS



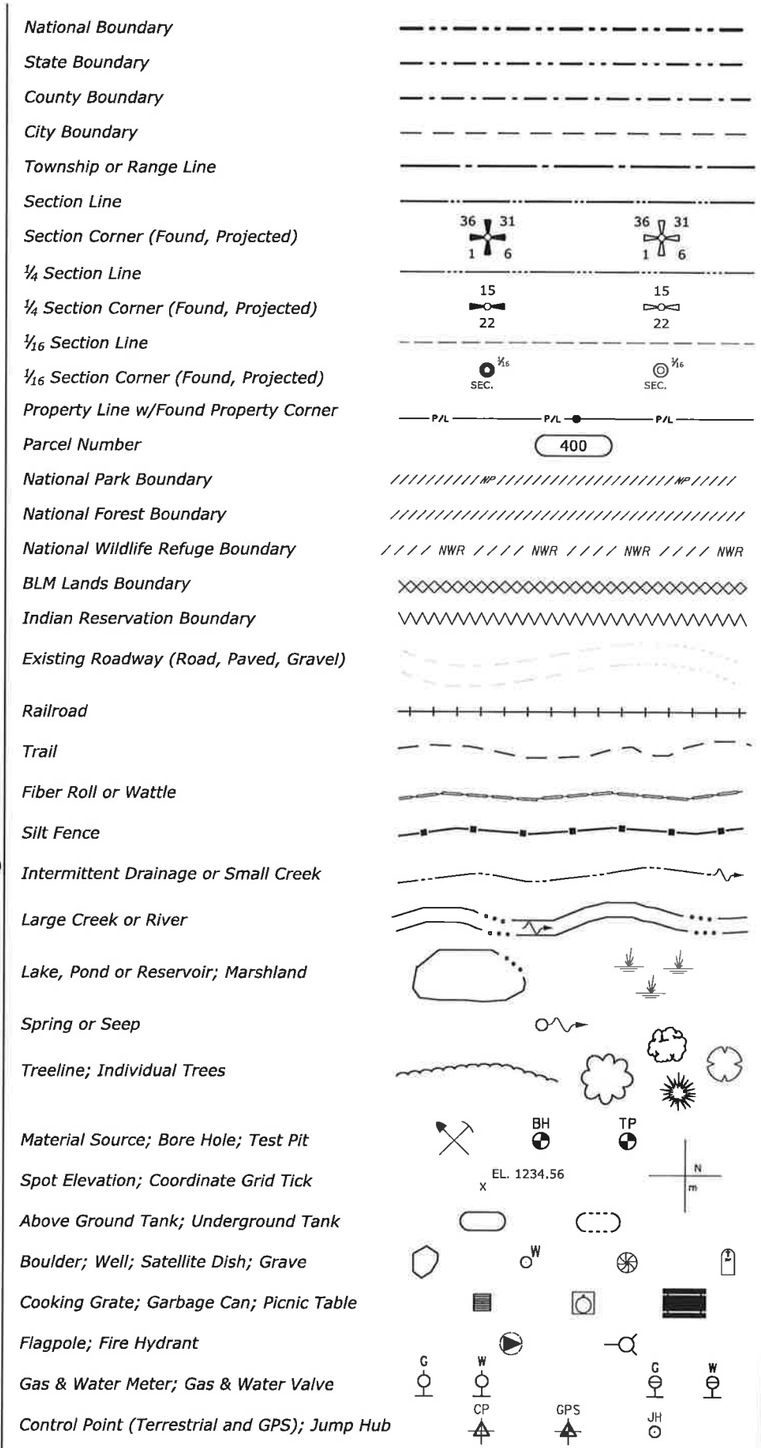
J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_ab.dgn [US_Sur2D]
6 May 2019 8:44 AM

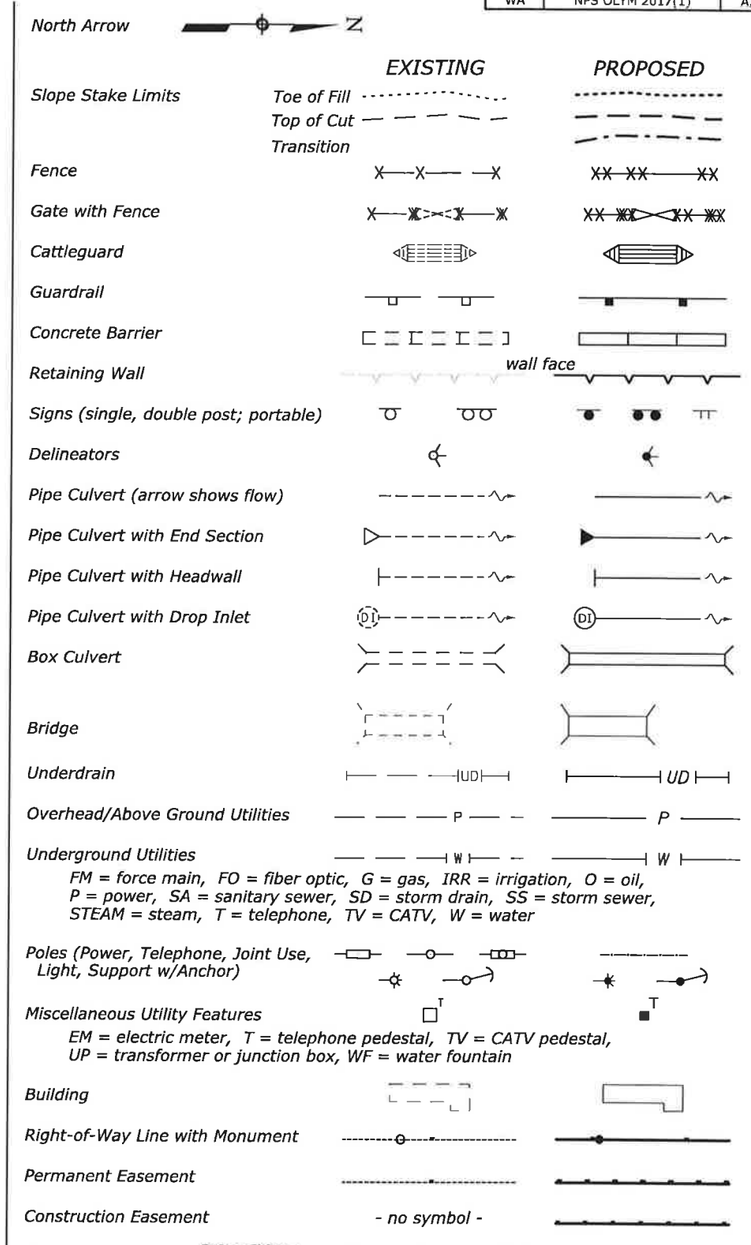
| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | A.3 |

| | |
|---|---|
| Δ | total central angle |
| Δc | curve central angle |
| Ø | diameter |
| θs | spiral central angle |
| abut. | abutment |
| ADT | average daily traffic |
| AH | ahead |
| appr. | approach |
| BK | back |
| BM | bench mark |
| BP | balance point |
| br. | bridge |
| brg. | bearing |
| cc or c. to c. | center to center |
| ℄ | centerline |
| clr. | clear |
| CMP | corrugated metal pipe |
| col. | column |
| conc. | concrete |
| conn. | connection |
| constr. jt. | construction joint |
| cont. | continuous |
| CS | point of curve to spiral |
| ctrs. | centers |
| CUFT | cubic foot (feet) |
| culv. | culvert |
| CUYD | cubic yard(s) |
| D | diameter |
| DHV | design hourly volume |
| dia. | diameter |
| diag. | diagonal |
| diaph. | diaphragm |
| dist. | distance |
| drwg(s). | drawing(s) |
| E | east |
| e | superelevation rate |
| El. 94.16 ft | elevation with number |
| elev. | elevation |
| emb. | embankment |
| EP | edge of pavement |
| EQ or eq. | equation |
| ER | edge of road |
| EW | edge of water |
| exc. | excavation |
| exp. jt. | expansion joint |
| fin. | finish |
| flg. | flange |
| ft2 | square foot |
| ft3 | cubic foot (feet) |
| ftg. | footing |
| ga. | gage (gauge) |
| galv. | galvanized |
| hdwl. | headwall |
| hex. | hexagon |
| HW | high water |
| ID | inside diameter |
| jt. | joint |
| L | length of curve |
| lam. | lamination |
| lat. | latitude |
| LNFT | linear foot (feet) |
| long. | longitudinal |
| LPSM | lump sum |
| Ls | length of spiral |
| lt. or LT | left |
| LW | low water |
| M.L. | main line |
| M.P. | mile post |
| matl. | material |
| max. | maximum |
| MGAL | thousand gallon |
| min. | minimum |
| mon. | monument |
| N | north |
| NC | normal crown |
| o. c. | on center |
| o. to o. | out to out |
| OD | outside diameter |
| OG | original ground |
| PC | point of curve |
| PCC | point of compound curve |
| PCS | point of curve to spiral |
| PI | point of intersection |
| pl. | plate |
| POC | point on curve |
| POS | point on spiral |
| POT | point on tangent |
| PS | point of tangent to spiral |
| PSC | point of spiral to curve |
| PST | point of spiral to tangent |
| PT | point of tangent |
| pvmt. | pavement |
| R | radius |
| R. | range |
| R/W | right-of-way |
| rdwy. | roadway |
| reinf. | reinforcement |
| reqd. | required |
| rt. or RT | right |
| rte. | route |
| S | south |
| SADT | seasonal average daily traffic |
| SC | point of spiral to curve |
| sec. | section |
| shldr. | shoulder |
| SLRY | slurry unit |
| spa. | spacing, spaces or spaced |
| SQFT | square foot |
| SQYD | square yard |
| SRS | point of spiral to reverse spiral |
| SS | point of spiral to spiral (no curve) |
| ST | point of spiral to tangent |
| STA, Sta. | station |
| std. | standard |
| stgr. | stringer |
| stiff. | stiffener |
| struc. | structural |
| STS | point of spiral to tangent spiral |
| sym. | symmetrical |
| T | tangent distance |
| T. | township |
| TBM | temporary bench mark |
| thd. | thread |
| TS | point of tangent to spiral |
| Ts | tangent distance (spiraled curve) |
| typ. | typical |
| V | design speed |
| vph | vehicles per hour |
| VPI | vertical point of intersection |
| W | west |
| yd2 | square yard |
| yd3 | cubic yard(s) |

## NOTE:

1. Other symbols used in the plans will be shown in a legend on the appropriate plan sheet.




NPS Drwg. No. 149/60519

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

# PLAN SYMBOLS AND ABBREVIATIONS

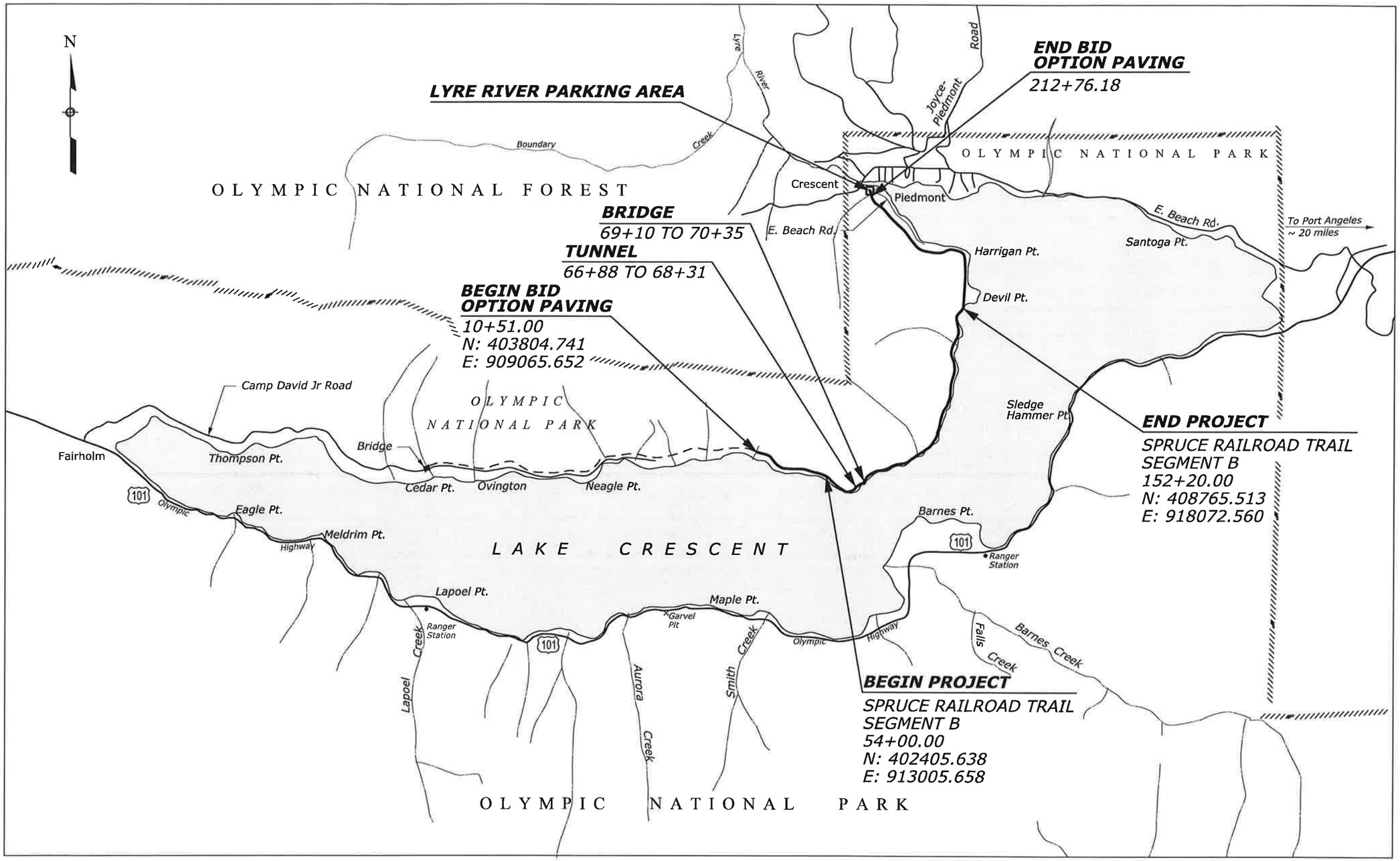
DETAIL APPROVED FOR USE 11/2001

REVISED: 9/2005 1/2007 10/2009_ 10/2014

DETAIL W101-1

13 February 2019 4:39 PM J:\DCS\Projects\TRN\60547135_WFLSpruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_ac.dgn [USC]

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | A.4 |




Scale in miles

½ ¼ 0 ½ 1

# VICINITY MAP

6 May 2019 8:47 AM J:\DCS\Projects\TRN\60547135_WFLSpruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_ad.dgn [US_Sur_ft2D]

# SUMMARY OF QUANTITIES - Schedule A

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | B.1 |

NPS PMIS No. 136047
NPS Drwg No. 101/1168934

| AMEND | Line Item No. | Pay Item Number | Pay Item Description | Unit | Sheet and Description: Section C TYPICAL SECTIONS | Section D PLAN & PROFILE | Section E EROSION CONTROL | Section F DRAINAGE | Section G TUNNEL | Section H MSE WALL | Section I STRUCTURES | Section J EXTERIOR ROCKFALL MITIGATION | MISCELLANEOUS | ALLOWANCE | | | | Estimated Quantities: Bid Schedule | Remarks and/or Determination of Estimated Quantity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A0020 | 15101-0000 | MOBILIZATION | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | A0040 | 15201-0000 | CONSTRUCTION SURVEY AND STAKING | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | A0060 | 15301-0000 | CONTRACTOR QUALITY CONTROL | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | A0080 | 15401-0000 | CONTRACTOR TESTING | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | A0100 | 15501-0000 | CONSTRUCTION SCHEDULE | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | A0120 | 15705-0100 | SOIL EROSION CONTROL, SILT FENCE | LNFT | | | 8,651 | | | | | | | 49 | | | | 8,700 | |
| | A0140 | 15705-1400 | SOIL EROSION CONTROL, FIBER ROLL | LNFT | | | 632 | | | | | | | 68 | | | | 700 | |
| | A0160 | 20101-0000 | CLEARING AND GRUBBING | ACRE | | 2.1 | | | | | | | | | | | | 2.1 | |
| | A0180 | 20301-1900 | REMOVAL OF PIPE CULVERT | EACH | | | | 1 | | | | | | | | | | 1 | |
| | A0200 | 20401-0000 | ROADWAY EXCAVATION | CUYD | | 8,840 | | | | | | | | 860 | | | | 9,700 | |
| | A0220 | 20403-0000 | UNCLASSIFIED BORROW | CUYD | | 2,305 | | | | | | | | 95 | | | | 2,400 | |
| | A0240 | 20421-0000 | ROCK EXCAVATION | CUYD | | 18 | | | | 357 | | | | 25 | | | | 400 | |
| | A0260 | 20435-2000 | BACKFILL, GRANULAR | CUYD | 70 | | | | | | | | | | | | | 70 | |
| | A0280 | 20701-0100 | SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE A, NONWOVEN | SQYD | 15,250 | | | 159 | | | | | | 91 | | | | 15,500 | |
| | A0300 | 20801-0000 | STRUCTURE EXCAVATION | CUYD | | | | | | 2,753 | 102 | | | 45 | | | | 2,900 | |
| | A0320 | 20810-0000 | SHORING AND BRACING | LPSM | | | | | | All | | | | | | | | ALL | Contract Quantity |
| | A0340 | 25101-0200 | PLACED RIPRAP, METHOD A, CLASS 2 | CUYD | | | | 55 | | | | | | 15 | | | | 70 | |
| | A0360 | 25101-0300 | PLACED RIPRAP, METHOD A, CLASS 3 | CUYD | | | | | | 452 | | | | 48 | | | | 500 | |
| | A0380 | 25501-1000 | MECHANICALLY STABILIZED EARTH WALL, WELDED WIRE FACE contractor designed | SQFT | | | | | | 5,917 | | | | | | | | 5,917 | |
| | A0400 | 25701-0200 | CONTRACTOR FURNISHED MECHANICALLY STABILIZED EARTH WALL DESIGN | LPSM | | | | | | All | | | | | | | | ALL | Contract Quantity |
| | A0420 | 26001-0000 | ROCK BOLT 50 KIP | LNFT | | | | | | | | 640 | | | | | | 640 | |
| | A0440 | 26001-0000 | ROCK BOLT 25 KIP | LNFT | | | | | | | | 2,615 | | | | | | 2,615 | |
| | A0460 | 26002-0000 | ROCK DOWEL (INTERIOR) | LNFT | | | | | 1,420 | | | | | | | | | 1,420 | |
| | A0480 | 26002-0000 | ROCK DOWEL (EXTERIOR) | LNFT | | | | | 91 | | | 585 | | | | | | 676 | |
| | A0500 | 30202-2000 | ROADWAY AGGREGATE, METHOD 2 | TON | 7,010 | | | | | | | | | 90 | | | | 7,100 | |
| | A0520 | 55201-0100 | STRUCTURAL CONCRETE, CLASS A | CUYD | | | | | | | 25 | | | | | | | 25 | |
| | A0540 | 55235-0000 | EXPANSION JOINTS | LNFT | | | | | | | 24 | | | | | | | 24 | |
| | A0560 | 55401-1000 | REINFORCING STEEL | LB | | | | | | | 2,500 | | | | | | | 2,500 | |
| | A0580 | 55504-0000 | PRE-FABRICATED STEEL BRIDGE | LPSM | | | | | | | All | | | | | | | ALL | Contract Quantity |

MileStone: 95%
Date Completed: In Progress
Report Date: 05/06/19

J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\[olym201701_ba.xlsm]Sheet
6-May-2019 1:41 PM

# SUMMARY OF QUANTITIES - Schedule A

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | B.2 |

NPS PMIS No. 136047
NPS Drwg No. 101/1168934

| AMEND | Line Item No. | Pay Item Number | Pay Item Description | Unit | Sheet and Description: Section C TYPICAL SECTIONS | Section D PLAN & PROFILE | Section E EROSION CONTROL | Section F DRAINAGE | Section G TUNNEL | Section H MSE WALL | Section I STRUCTURES | Section J EXTERIOR ROCKFALL MITIGATION | MISCELLANEOUS | ALLOWANCE | | | | Estimated Quantities: Bid Schedule | Remarks and/or Determination of Estimated Quantity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A0600 | 55601-0900 | BRIDGE RAILING, STEEL | LNFT | | | | | | | 24 | | | | | | | 24 | |
| | A0620 | 55701-1000 | STRUCTURAL TIMBER AND LUMBER, UNTREATED | MFBM | | | | | 1.1 | | | | | | | | | 1.1 | |
| | A0640 | 56601-0000 | SHOTCRETE (MIN 4 INCH) | SQYD | | | | | 40 | | | | | 24 | | | | 64 | |
| | A0660 | 56601-0000 | SHOTCRETE (MIN 3-INCH) | SQYD | | | | | 23 | | | | | 14 | | | | 37 | Need Lineal foot unit |
| | A0680 | 56701-0000 | MICROPILE | LNFT | | | | | | | 128 | | | | | | | 128 | |
| | A0700 | 60201-0800 | 24-INCH PIPE CULVERT | LNFT | | | | 339 | | | | | | 20 | | | | 359 | |
| | A0720 | 60504-0000 | GEOCOMPOSITE SHEET DRAIN SYSTEM | SQYD | | | | | 40 | | | | | | | | | 40 | |
| | A0740 | 61010-0000 | DRAINAGE WEEP HOLE | EACH | | | | | 75 | | | | | | | | | 75 | |
| | A0760 | 62201-0250 | DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY | HOUR | | | | | | | | | 100 | | | | | 100 | |
| | A0780 | 62201-3150 | HYDRAULIC EXCAVATOR, CRAWLER MOUNTED, 1.0 CUBIC YARD MINIMUM CAPACITY WITH THUMB ATTACHMENT | HOUR | | | | | | | | | 100 | | | | | 100 | |
| | A0800 | 62302-0100 | SPECIAL LABOR, SLOPE SCALING (MANHOUR) | HOUR | | | | | 40 | | | 860 | | | | | | 900 | |
| | A0820 | 62302-0100 | SPECIAL LABOR, SLOPE SCALING (SAFETY SCALING, MANHOUR) | HOUR | | | | | | | | 20 | | | | | | 20 | |
| | A0840 | 62405-0300 | PLACING CONSERVED TOPSOIL, 4-INCH DEPTH | SQYD | | | 10,211 | | | | | | | 81 | | | | 10,292 | |
| | A0860 | 62515-1000 | MULCHING, DRY METHOD | ACRE | | | 1.8 | | | | | | | 0.2 | | | | 2.0 | |
| | A0880 | 62515-3000 | MULCHING, HYDRAULIC METHOD, BONDED FIBER MATRIX | ACRE | | | 0.3 | | | | | | | 0.2 | | | | 0.5 | |
| | A0900 | 63501-0000 | TEMPORARY TRAFFIC CONTROL | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | A0920 | 64703-1000 | MITIGATION, LANDSCAPING LOG | EACH | | | 35 | | | | | | | | | | | 35 | |
| | A0940 | 65101-1000 | DRAPED ROCKFALL PROTECTION, WIRE MESH | SQYD | | | | | | | | 6,800 | | | | | | 6,800 | |
| | A0960 | 65101-1000 | DRAPED ROCKFALL PROTECTION, WIRE MESH (TUNNEL INTERIOR) | SQYD | | | | | 70 | | | | | | | | | 70 | |
| | A0980 | 65301-0000 | MIDSLOPE ROCKFALL ATTENUATOR | SQYD | | | | | | | | 200 | | | | | | 200 | |

MileStone: 95%
Date Completed: In Progress
Report Date: 05/06/19

J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_ba.xlsm]Sheet (2)
6-May-2019 1:41 PM

# SUMMARY OF QUANTITIES - Schedule B

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | B.3 |

NPS PMIS No. 136047
NPS Drwg No. 101/1168934

| AMEND | Line Item No. | Pay Item Number | Pay Item Description | Unit | Sheet and Description: Section C TYPICAL SECTIONS | Section D PLAN & PROFILE | Section E EROSION CONTROL | Section F DRAINAGE | Section G TUNNEL | Section H MSE WALL | Section I STRUCTURES | Section J EXTERIOR ROCKFALL MITIGATION | MISCELLANEOUS | ALLOWANCE | | | | Estimated Quantities: Bid Schedule | Remarks and/or Determination of Estimated Quantity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B0020 | 15101-0000 | MOBILIZATION | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | B0040 | 15201-0000 | CONSTRUCTION SURVEY AND STAKING | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | B0060 | 15301-0000 | CONTRACTOR QUALITY CONTROL | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |
| | B0080 | 21201-0000 | LINEAR GRADING | MILE | | 2.0 | | | | | | | | | | | | 2.0 | |
| | B0100 | 30202-2000 | ROADWAY AGGREGATE, METHOD 2 | TON | 2,224 | | | | | | | | | 76 | | | | 2,300 | |
| | B0120 | 40301-0100 | ASPHALT CONCRETE PAVEMENT, TYPE 1 (3 inch compacted depth) | TON | 3,315 | | | | | | | | | 85 | | | | 3,400 | |
| | B0140 | 60915-1000 | WHEELSTOP, CONCRETE | EACH | | 20 | | | | | | | | | | | | 20 | |
| | B0160 | 61901-0000 | FENCE (TYPE CEDAR, 6-FOOT) | LNFT | | 213 | | | | | | | | | | | | 213 | |
| | B0180 | 63401-0100 | PAVEMENT MARKINGS, TYPE A, SOLID (WHITE) | LNFT | | 890 | | | | | | | | | | | | 890 | |
| | B0200 | 63405-0450 | PAVEMENT MARKINGS, TYPE A, ACCESSIBILITY SYMBOL (WHITE) | EACH | | 2 | | | | | | | | | | | | 2 | |
| | B0220 | 63501-0000 | TEMPORARY TRAFFIC CONTROL | LPSM | | | | | | | | | | | | | | ALL | Contract Quantity |

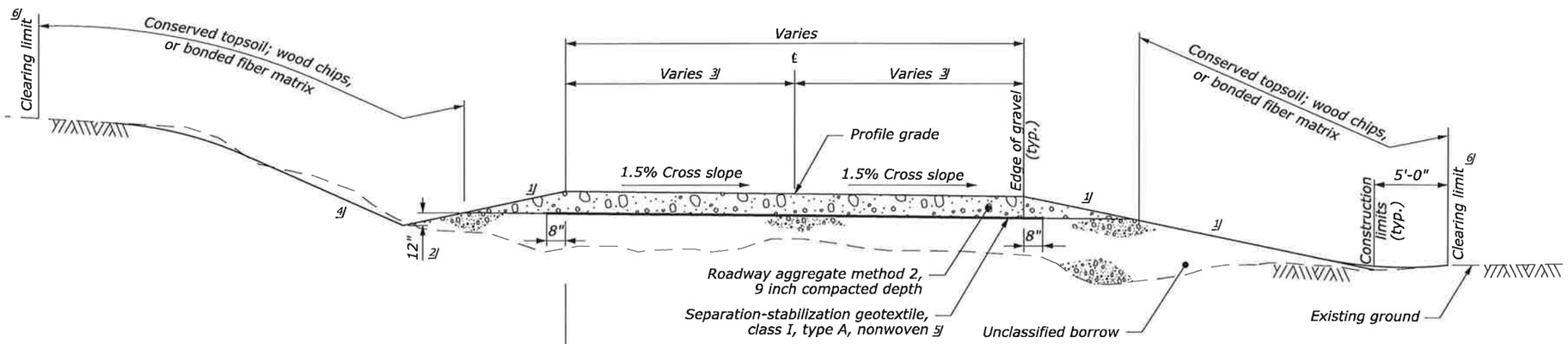
MileStone: 95%
Date Completed: In Progress
Report Date: 05/06/19

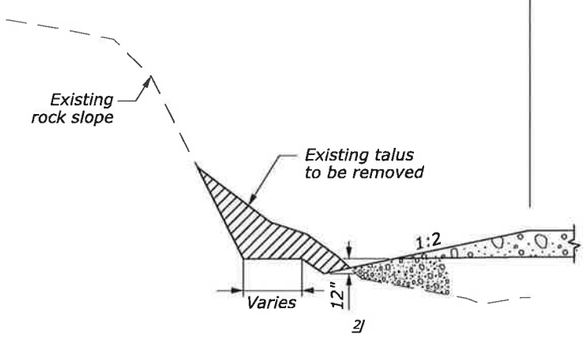
J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\[olym201701_ba.xlsm]Sheet (3)
6-May-2019 1:41 PM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | C.1 |

## PAVEMENT STRUCTURE QUANTITES

| ITEM | DESCRIPTION | QUANTITY | UNITS | ESTIMATING VALUE |
|---|---|---|---|---|
| 20701-0100 | SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE A, NONWOVEN | 15250 | SQYD | |
| 30202-2000 | ROADWAY AGGREGATE, METHOD 2 | 7010 | TON | 1.85 TON/CUYD |
| 20435-2000 | GRANULAR BACKFILL | 70 | CUYD | |



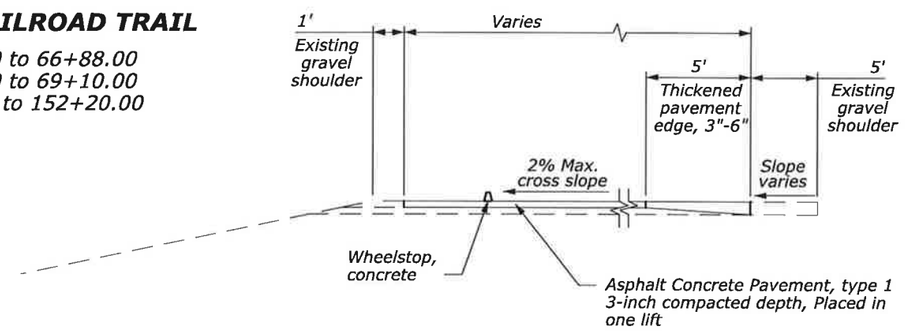




### LEFT SIDE WITH TALUS REMOVAL

54+00.00 to 56+30.00
60+10.00 to 64+10.00
71+50.00 to 72+90.00
82+70.00 to 83+50.00
84+30.00 to 85+30.00
86+10.00 to 86+70.00
116+70.00 to 118+50.00
120+30.00 to 120+50.00

### SPRUCE RAILROAD TRAIL

54+00.00 to 66+88.00
68+31.00 to 69+10.00
70+35.00 to 152+20.00




### PARKING LOT AREA

### FOOTNOTES:

1. Slope is 1:2 unless otherwise noted, see Fill Slope Table, this sheet.
2. In cut section, ditch depth is 1' unless otherwise noted.
3. See Plans.
4. Slope is 1:1.5 unless otherwise noted, see Cut Slope Table, this sheet.
5. Choke top of unclassified borrow with roadway aggregate before placing geotextile with approval from CO.
6. Clearing limits per Clearing Report.

### LEFT SIDE FILL SLOPE TABLE

| STATION TO STATION | SLOPE |
|---|---|
| 54+10 to 54+30 | 1:1.25 |
| 54+90 to 55+10 | 1:1.25 |
| 71+10 to 71+30 | 1:1.25 |
| 89+10 to 89+50 | 1:1.25 |
| 108+10 to 109+50 | 1:1.25 |
| 116+90 to 118+30 | 1:1.25 |

### RIGHT SIDE FILL SLOPE TABLE

| STATION TO STATION | SLOPE |
|---|---|
| 54+10 to 55+10 | 1:1.25 |
| 70+90 to 71+30 | 1:1.25 |
| 88+90 to 89+30 | 1:1.25 |
| 96+50 to 97+10 | 1:1.25 |
| 99+70 to 101+90 | 1:1.25 |
| 103+90 to 104+70 | 1:1.25 |
| 108+30 to 110+50 | 1:1.25 |
| 116+90 to 118+10 | 1:1.25 |
| 118+50 to 118+70 | 1:1.25 |

### RIGHT SIDE CUT SLOPE TABLE

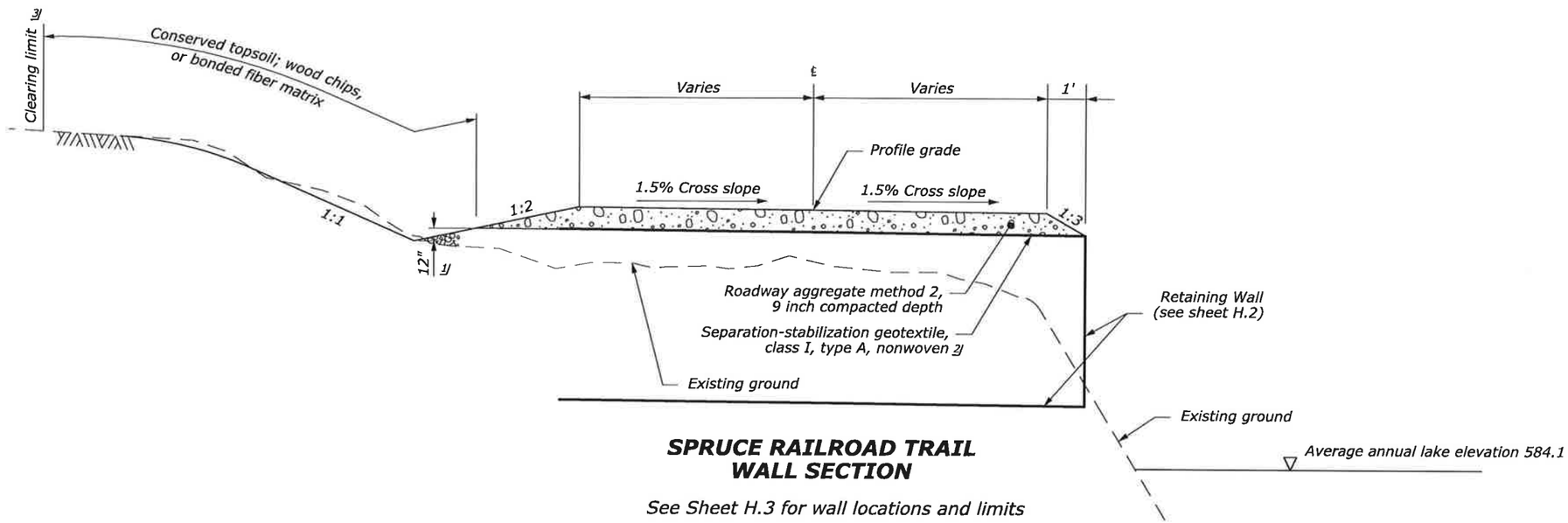
| STATION TO STATION | SLOPE |
|---|---|
| 68+30 to 68+90 | 1:1.25 |
| 71+50 to 72+30 | 1:2 |
| 78+50 to 78+90 | 1:2 |
| 82+50 to 83+90 | 1:1.25 |
| 84+30 to 85+50 | 1:1.25 |
| 90+30 to 93+10 | 1:1.25 |
| 95+70 to 96+30 | 1:1.25 |
| 98+50 to 99+10 | 1:1.25 |
| 107+30 to 107+90 | 1:1.25 |
| 111+10 to 112+50 | 1:1.25 |
| 112+70 to 112+90 | 1:1.25 |
| 120+50 to 120+70 | 1:1.25 |
| 146+50 to 148+90 | 1:1.25 |

NO SCALE

# TYPICAL SECTIONS

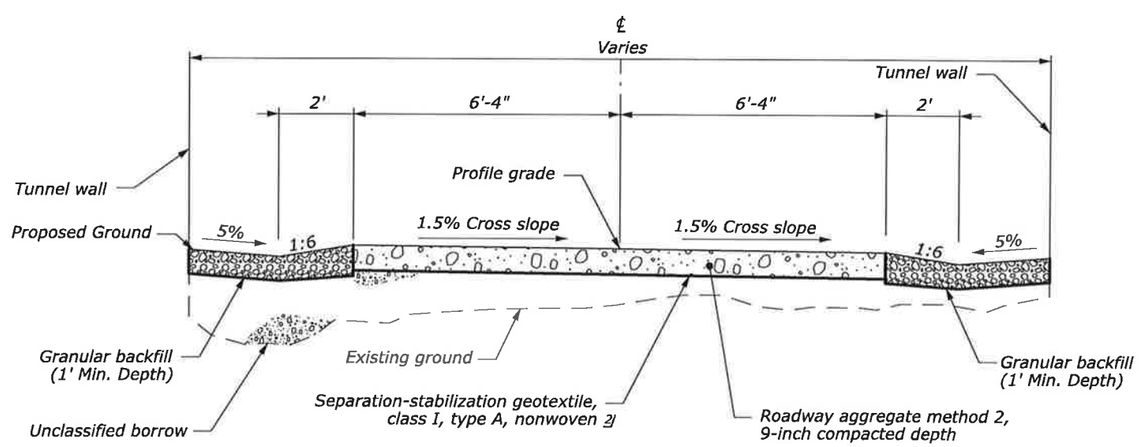
Designed by: T. La 04/2017 Checked by: B. Huschka 04/2017
J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_ca.dgn [US_Sur_ft2D]
6 May 2019 9:25 AM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | C.2 |




**SPRUCE RAILROAD TRAIL**
**WALL SECTION**

*See Sheet H.3 for wall locations and limits*




**SPRUCE RAILROAD TRAIL**
**INNER TUNNEL TRAIL**

*66+88.00 to 68+31.00*

NO SCALE

## FOOTNOTES:

1/ In cut section, ditch depth is 1' unless otherwise noted.

2/ Choke top of unclassified borrow with roadway aggregate before placing geotextile with approval from CO.

3/ Clearing limits per clearing report.

# TYPICAL SECTIONS

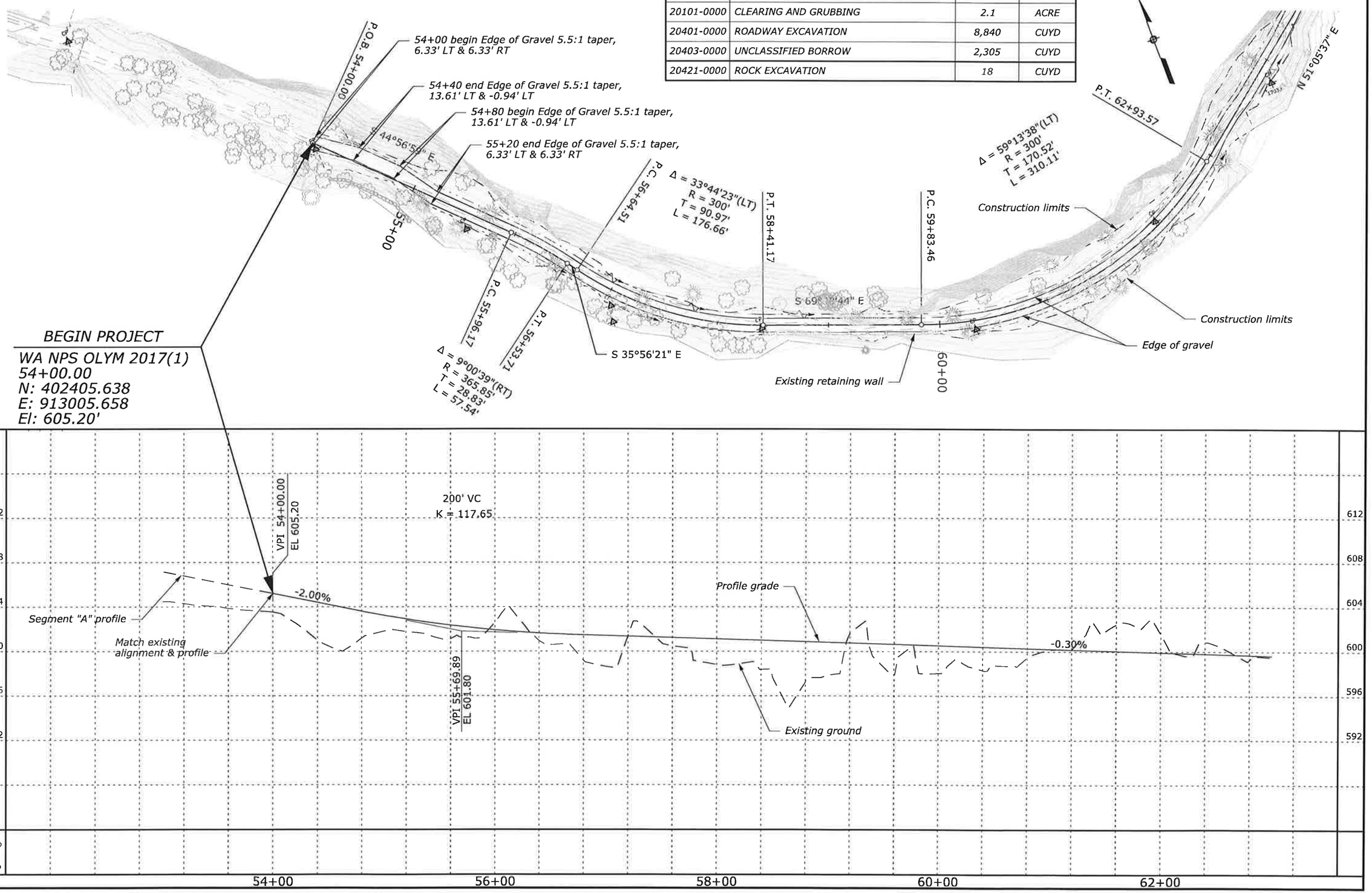
Designed by: T. La 04/2017 | Checked by: B. Huschka 04/2017

J:\DCS\Projects\TRN\60547135_WFLSpruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_cb.dgn [US_Sur_ft20] 6 May 2019 9:24 AM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.1 |

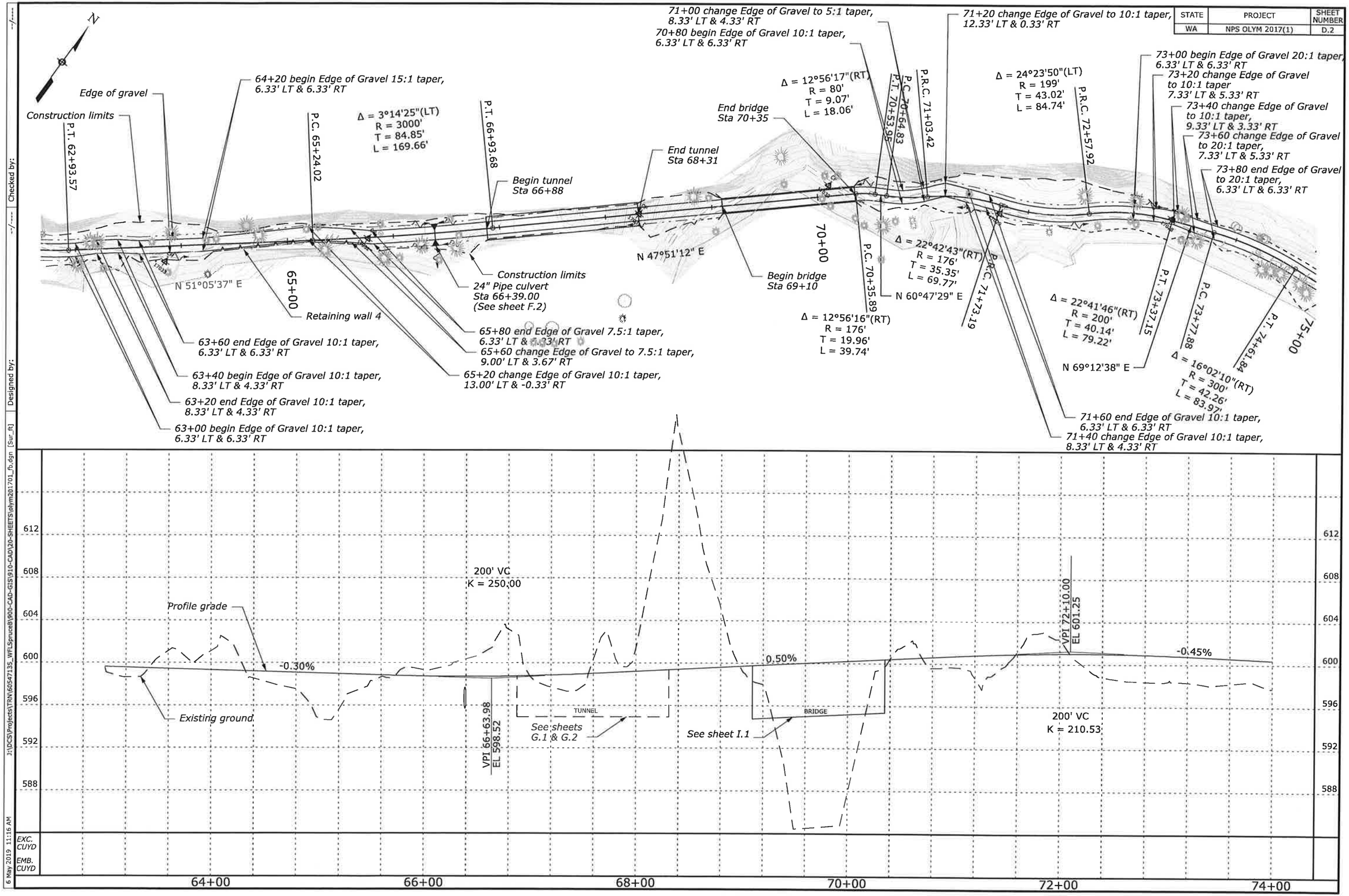
## PLAN AND PROFILE QUANTITES

| ITEM | DESCRIPTION | QUANTITY | UNITS |
|---|---|---|---|
| 20101-0000 | CLEARING AND GRUBBING | 2.1 | ACRE |
| 20401-0000 | ROADWAY EXCAVATION | 8,840 | CUYD |
| 20403-0000 | UNCLASSIFIED BORROW | 2,305 | CUYD |
| 20421-0000 | ROCK EXCAVATION | 18 | CUYD |




J:\DCS\Projects\TRN\60547135_WFL Spruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fa.dgn [Sur_ft] Designed by: --/--- Checked by: --/---
6 May 2019 1:12 PM

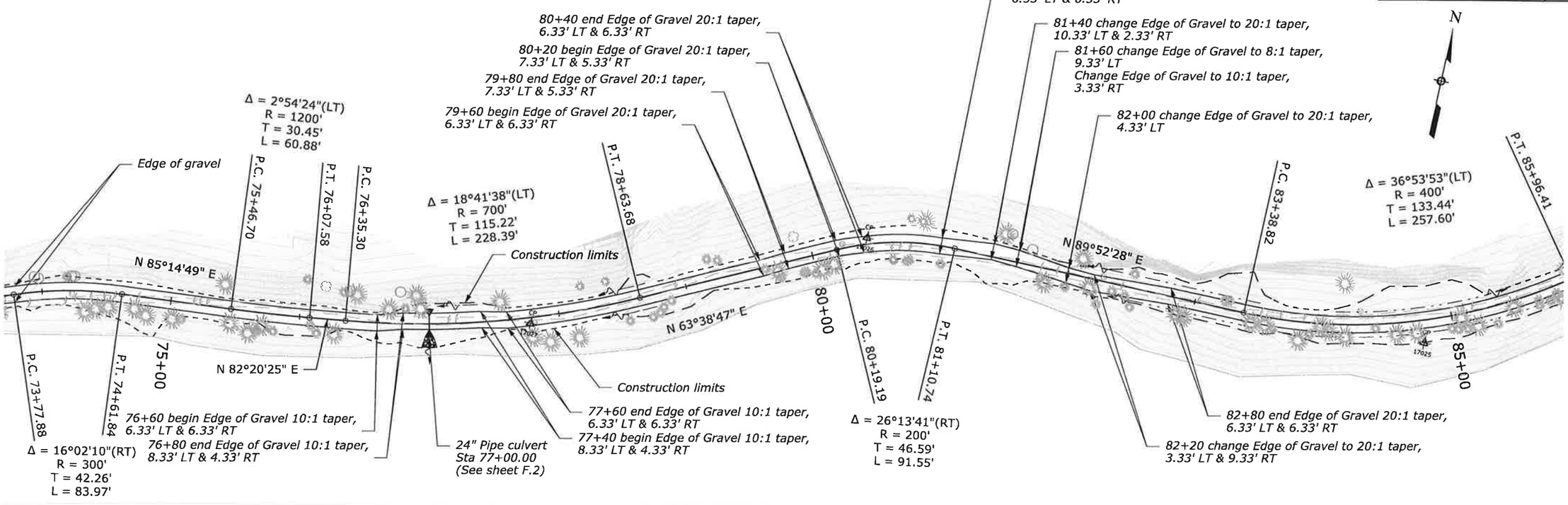
| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.2 |

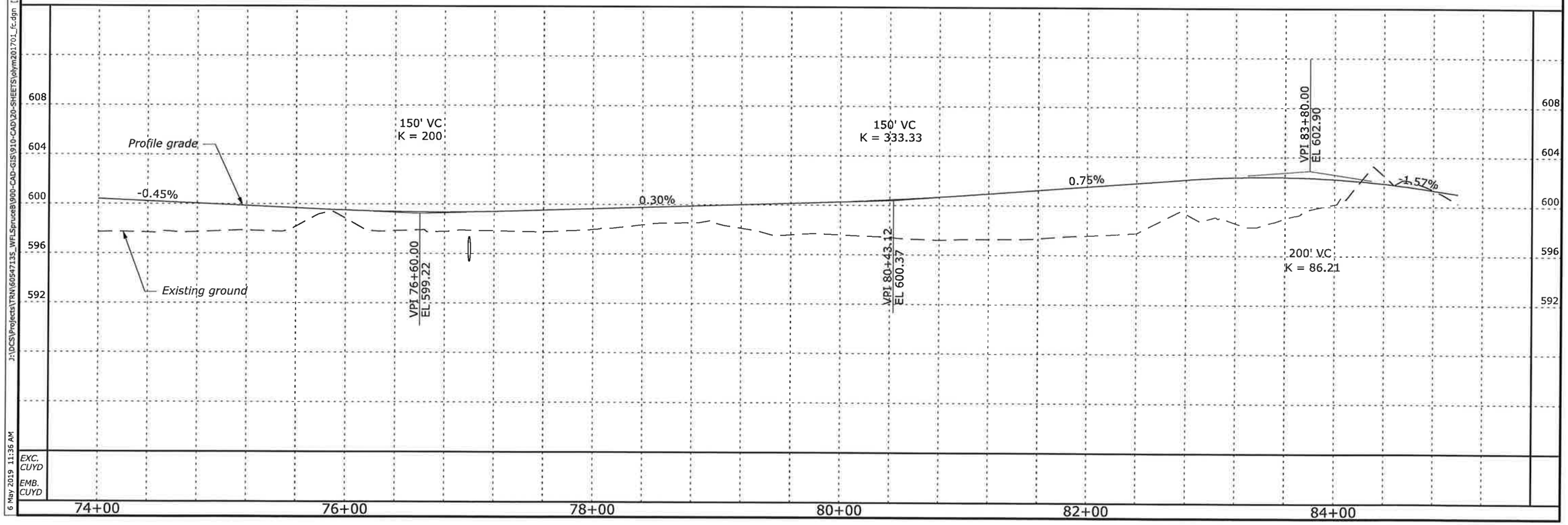



J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fb.dgn [Sur_ft] Designed by: --/--- Checked by: --/---

6 May 2019 11:16 AM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.3 |

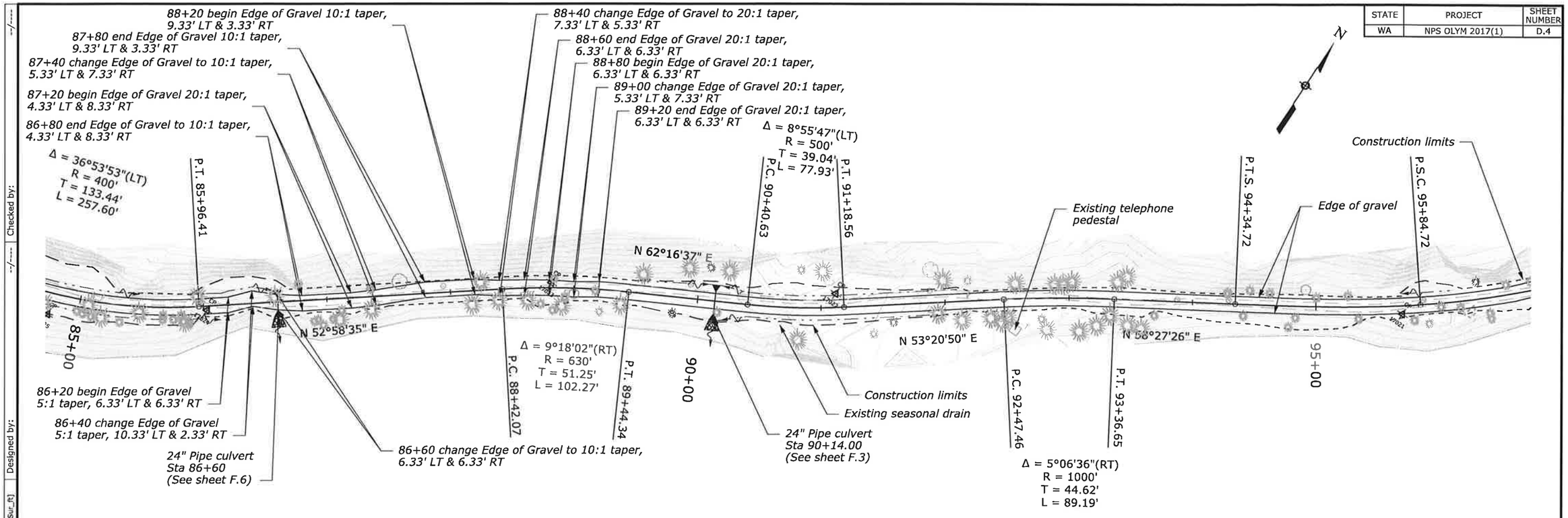


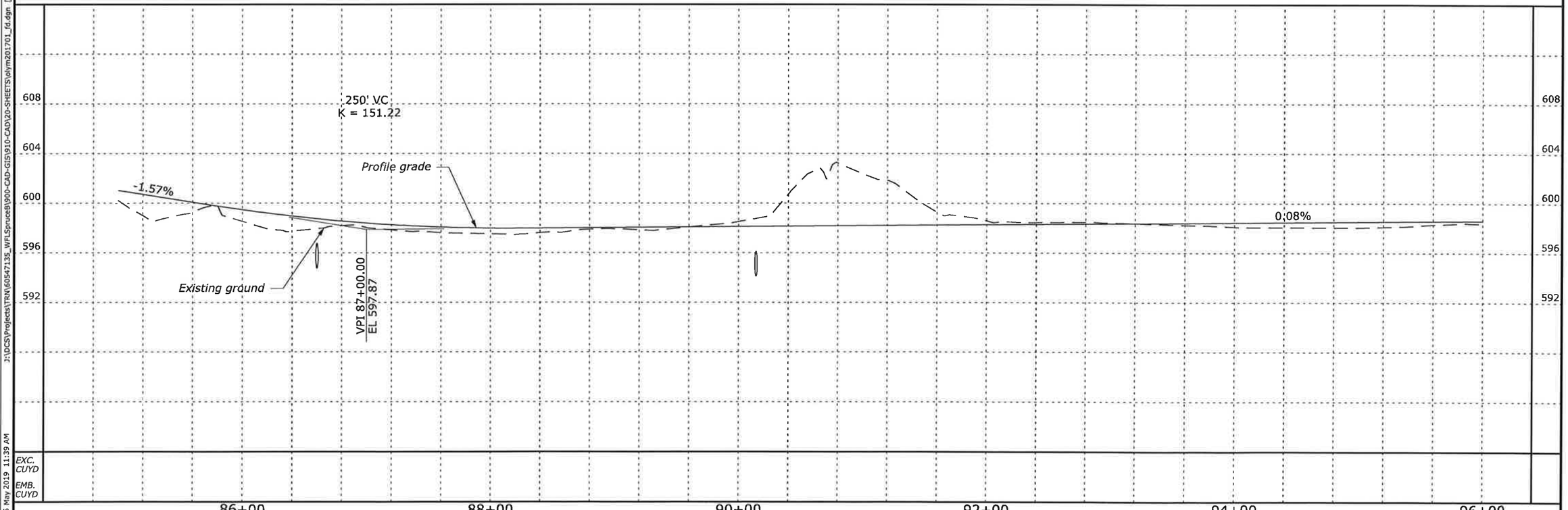




J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fc.dgn [Sur_ft] Designed by: --/---- Checked by: --/----

6 May 2019 11:36 AM

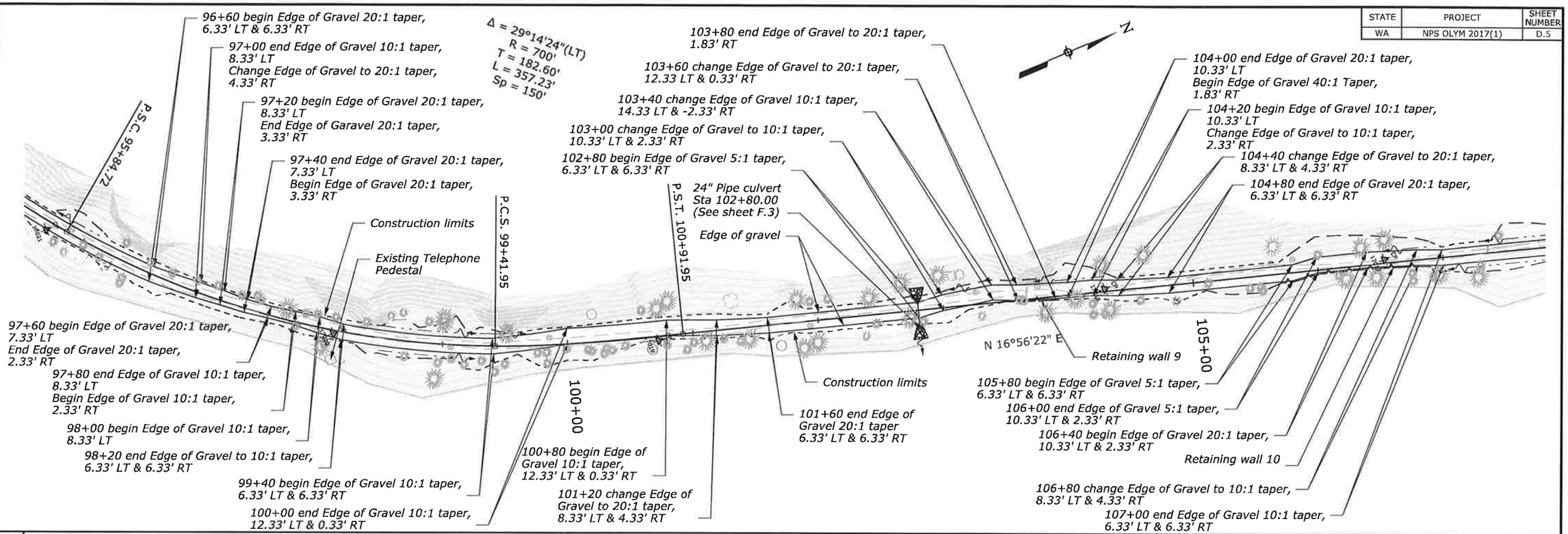
| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.4 |




J:\DCS\Projects\TRN\60547135_WFLSpruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fd.dgn [Sur_Pt] Designed by: -/---- Checked by: -/---- 6 May 2019 11:39 AM

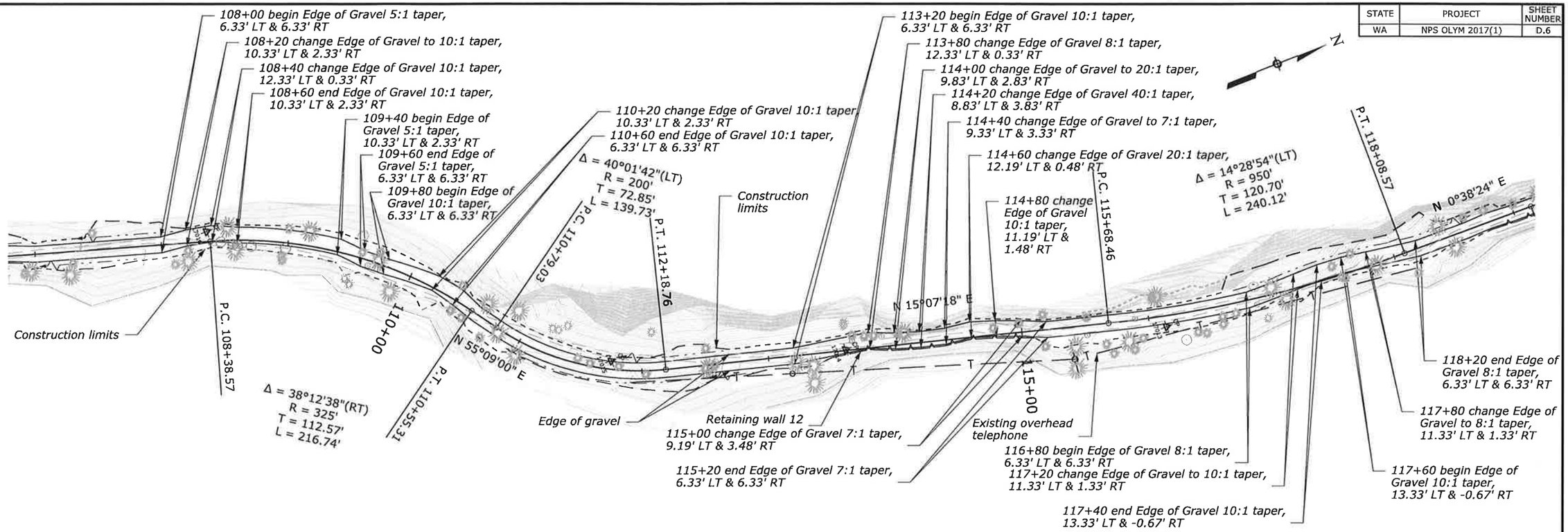
| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.5 |

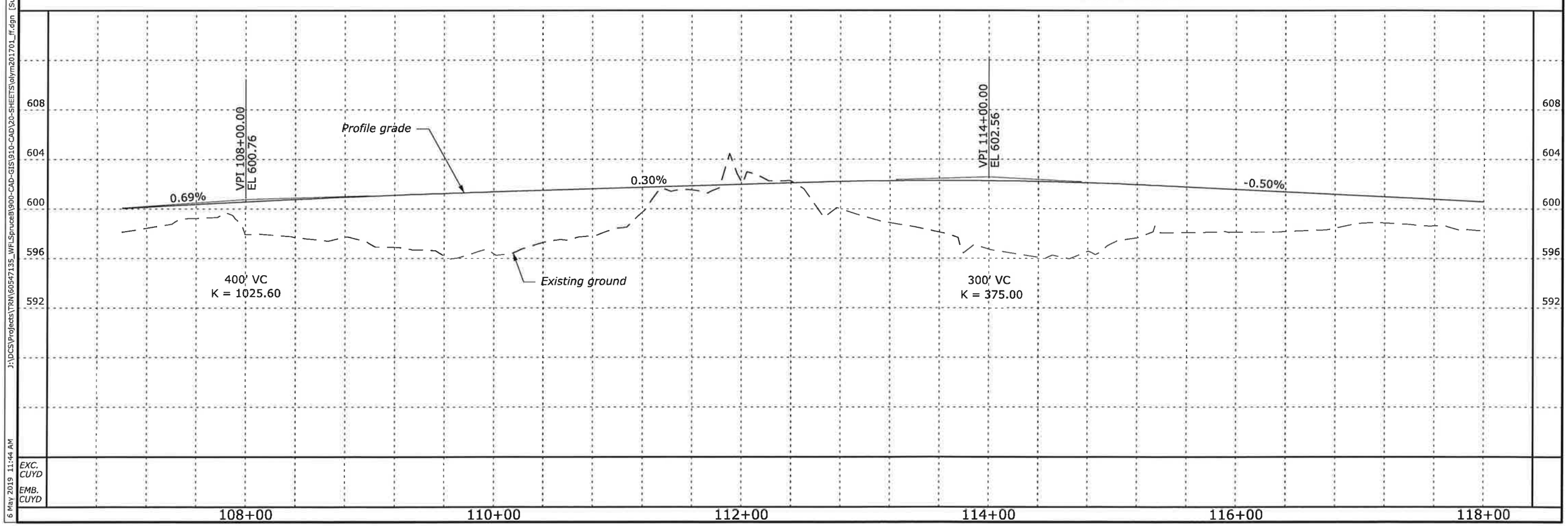



J:\DCS\Projects\TRN\60547135_WFLSpruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fe.dgn [Sur_ft] Designed by: --/---- Checked by: --/----

6 May 2019 11:41 AM

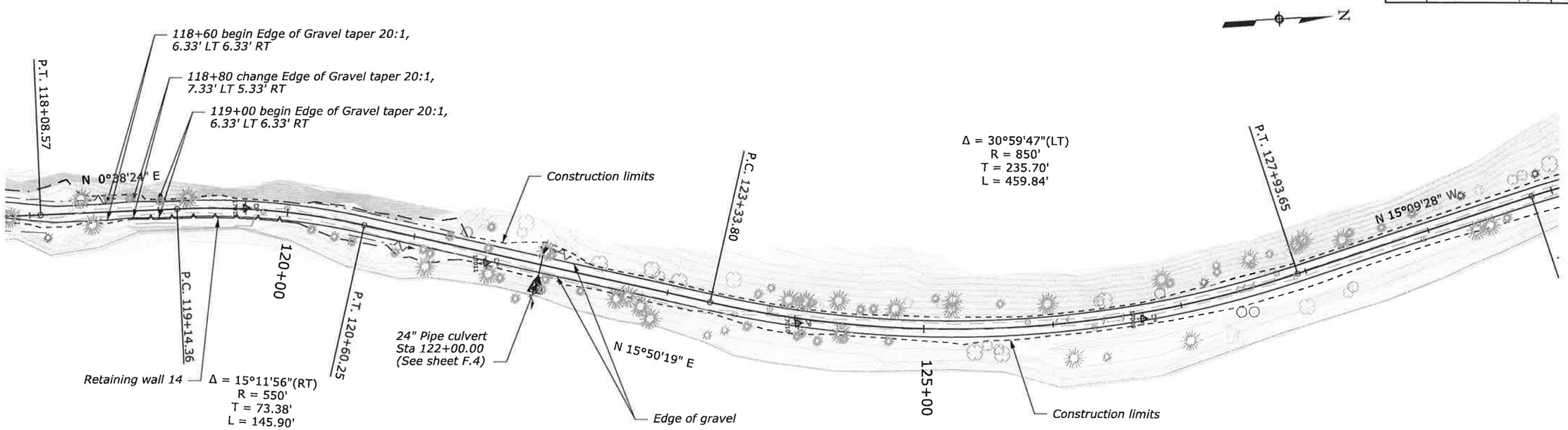
| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.6 |

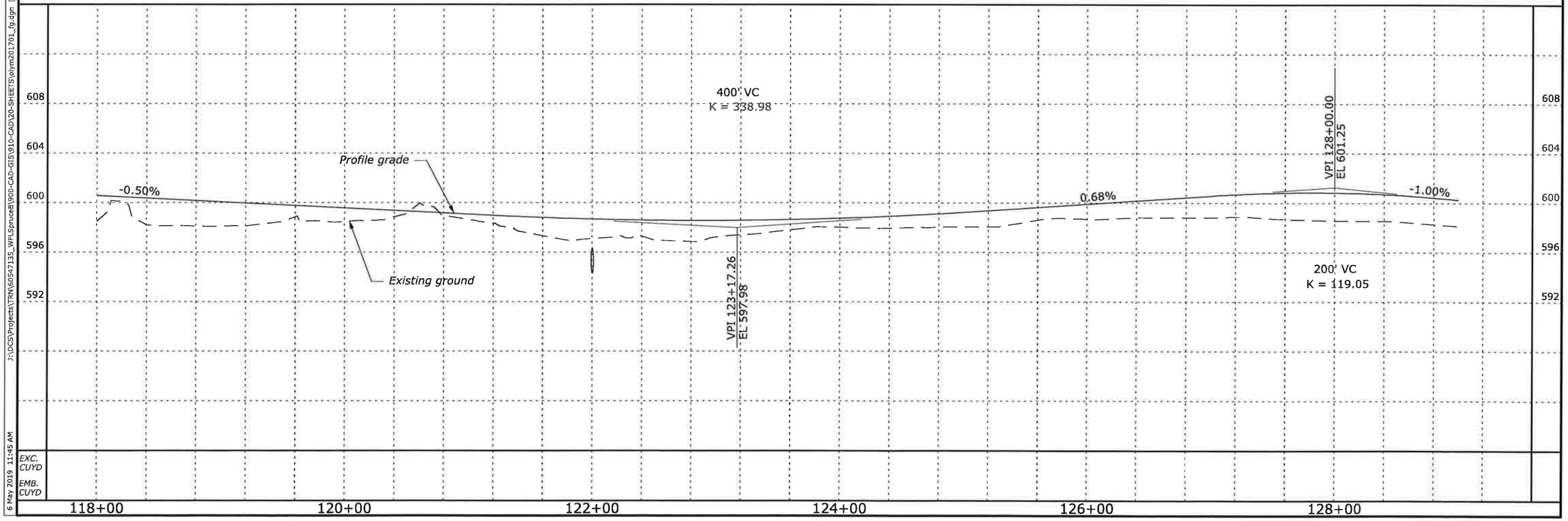



J:\DCS\Projects\TRN\60547135_WFL-SpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_ff.dgn [Sur_ft]
6 May 2019 11:44 AM
Designed by: --/---
Checked by: --/---

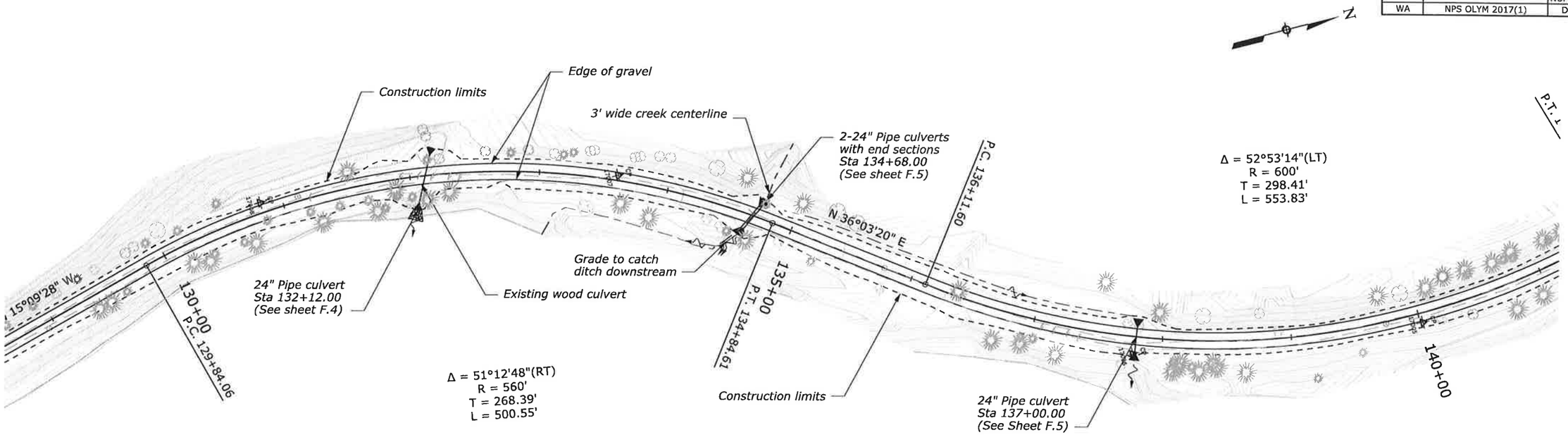
| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.7 |

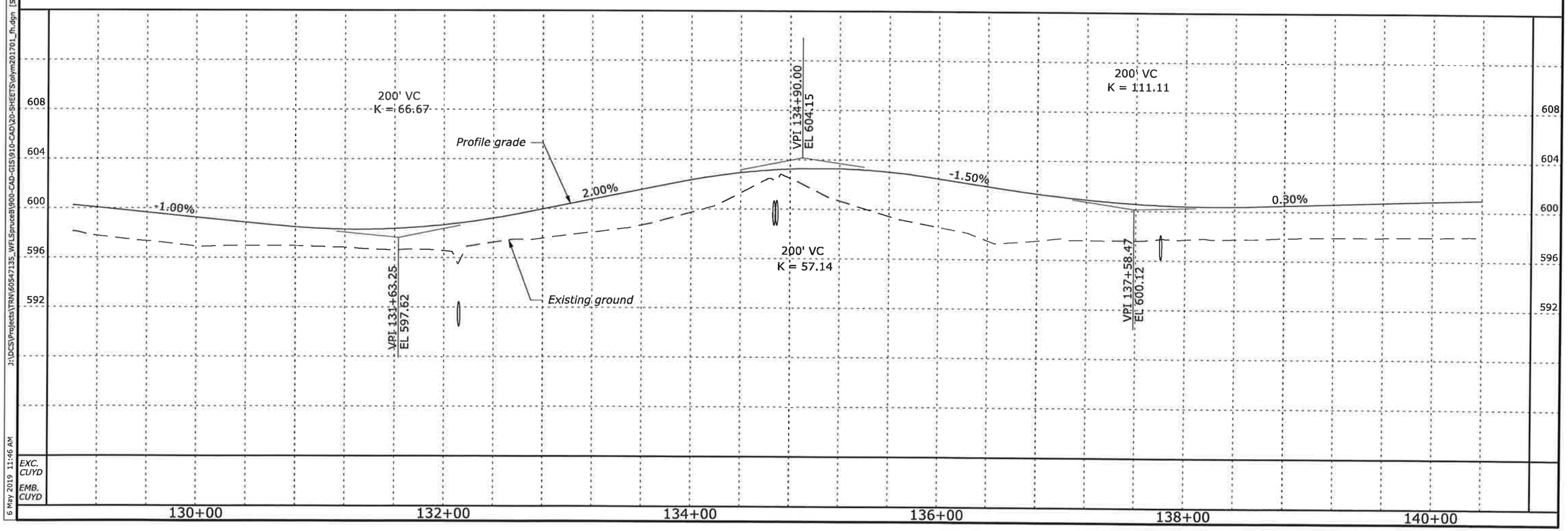



J:\DCS\Projects\TRN\60547135_WFLSpruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fg.dgn [Sur_Rt] Designed by: --/--- Checked by: --/---
6 May 2019 11:45 AM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.8 |

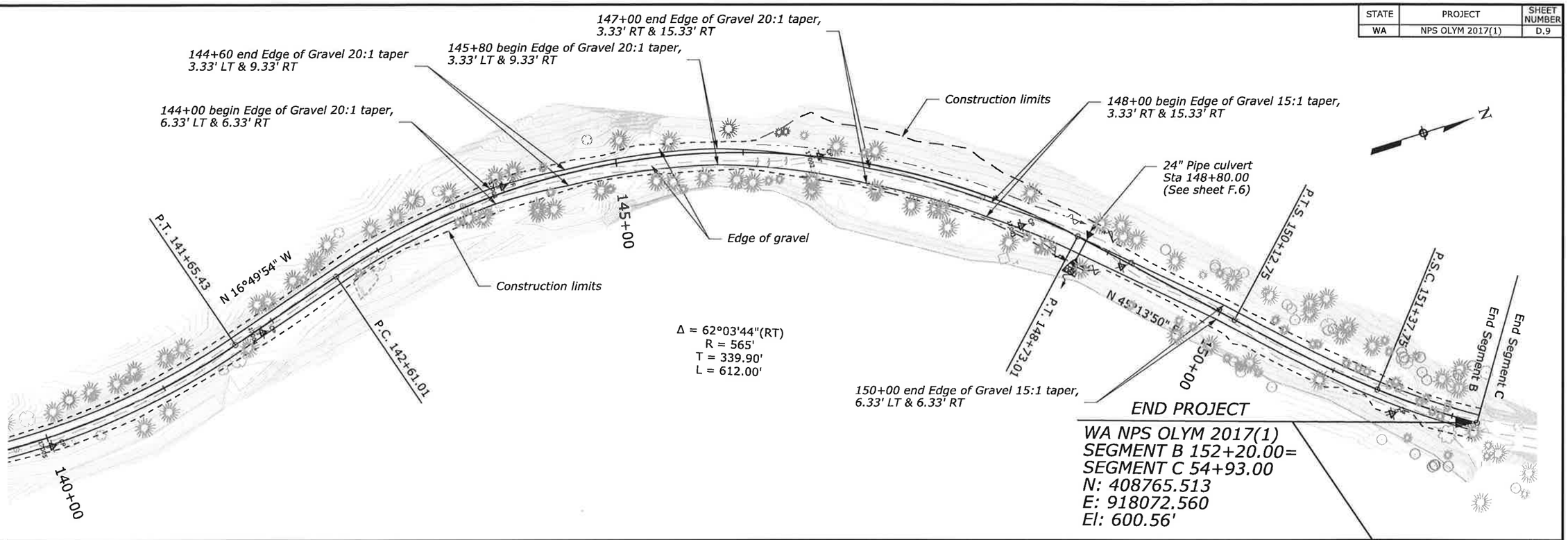


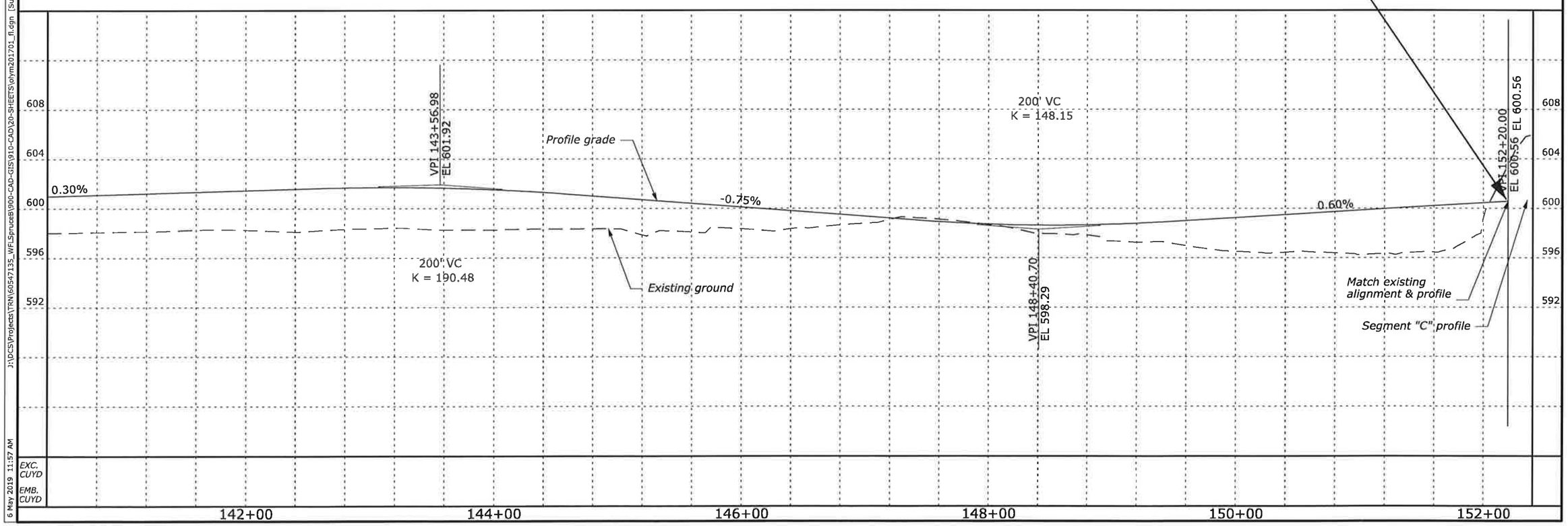




J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fh.dgn [Sur_ft] Designed by: --/--- Checked by: --/---

6 May 2019 11:46 AM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.9 |

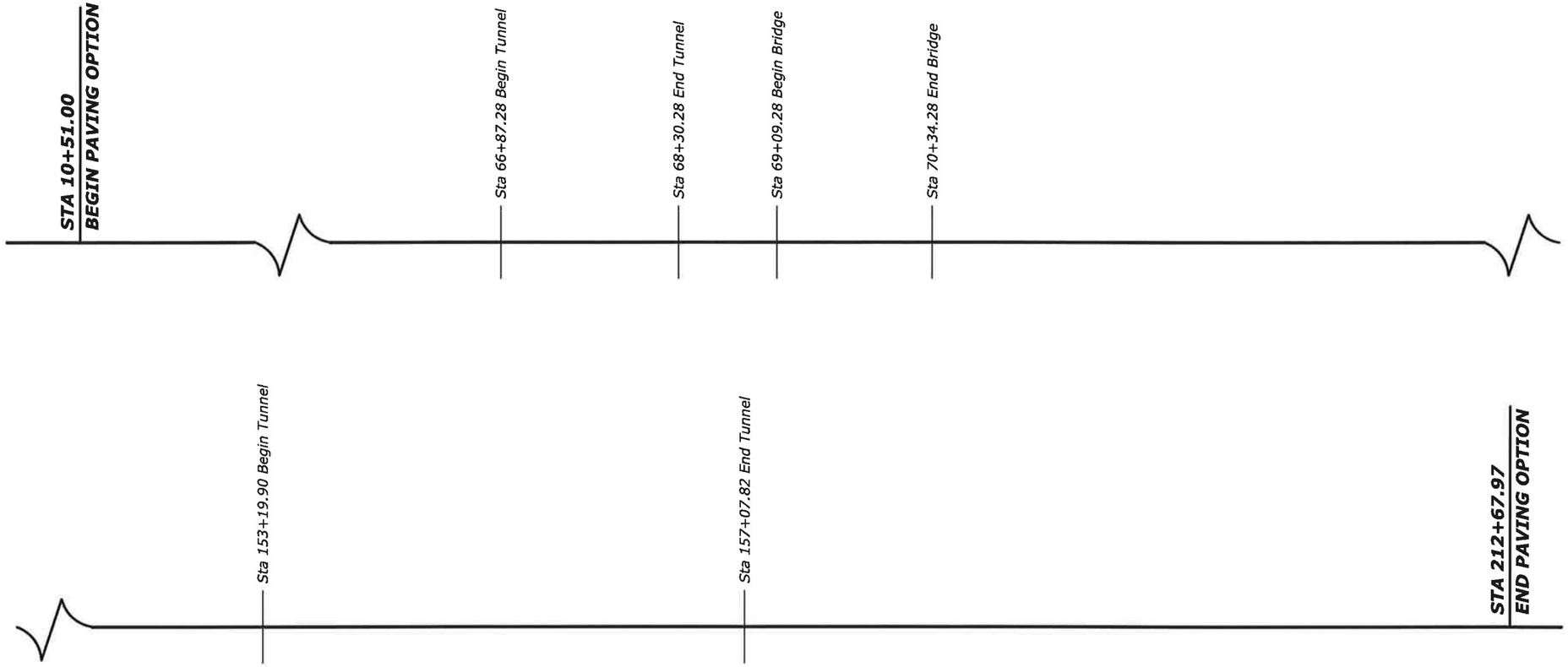



J:\DCS\Projects\TRN\60547135_WFLSpruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fl.dgn [Sur_ft] 6 May 2019 11:57 AM

Designed by: --/---- Checked by: --/----

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.10 |




NO SCALE

# LINE GRAPH

3 May 2019 4:29 PM J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_fi.dgn [US_Sur_R2D]
Designed by: T. La 04/2017 Checked by: B. Huschka 04/2017

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.11 |

PROJECT : Spruce Railroad Trail Segment B
DATE OF FIELD WORK : February/November 2017
DATE OF FINAL ADJUSTMENT : February/November/December 2017

GPK FILE DATED N/A

PROJECT UNITS : US SURVEY FOOT
COORDINATE SYSTEM : SPCS NAD83; WA North Zone 4601
EPOCH DATE : 91
VERTICAL DATUM : NAVD88

| POINT NUMBER | STATE PLANE COORDINATES | | | GEO COORDINATES | | | | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| | NORTH | EAST | ELEVATION | LATITUDE | LONGITUDE | ELLIPSOID HEIGHT | COMBINED FACTOR | |
| 17001 | 408469.917 | 917818.765 | 597.987 | 48.0817379 | -123.7902903 | | | Bar w/ Alum Cap |
| 17002 | 408335.442 | 917719.906 | 598.366 | 48.0813591 | -123.7906733 | | | Bar w/ Alum Cap |
| 17003 | 408090.966 | 917668.491 | 598.108 | 48.0806839 | -123.790845 | | | Bar w/ Alum Cap |
| 17004 | 407876.997 | 917721.815 | 597.903 | 48.0801034 | -123.7905934 | | | Bar w/ Alum Cap |
| 17005 | 407692.963 | 917757.728 | 597.878 | 48.0796031 | -123.7904177 | | | Bar w/ Alum Cap |
| 17006 | 407469.016 | 917726.573 | 596.563 | 48.0789863 | -123.7905099 | | | Bar w/ Alum Cap |
| 17007 | 407118.228 | 917495.758 | 598.456 | 48.0780011 | -123.7913982 | | | Bar w/ Alum Cap |
| 17008 | 406845.250 | 917447.756 | 597.287 | 48.0772482 | -123.7915516 | | | Bar w/ Alum Cap |
| 17009 | 406442.966 | 917551.136 | 598.747 | 48.0761571 | -123.7910657 | | | Bar w/ Alum Cap |
| 17010 | 406176.660 | 917540.059 | 597.699 | 48.0754265 | -123.7910692 | | | Bar w/ Alum Cap |
| 17011 | 405939.139 | 917479.708 | 597.245 | 48.0747695 | -123.7912785 | | | Bar w/ Alum Cap |
| 17012 | 405756.119 | 917427.085 | 598.237 | 48.0742626 | -123.7914648 | | | Bar w/ Alum Cap |
| 17013 | 405401.643 | 917409.674 | 598.096 | 48.0732897 | -123.7914803 | | | Bar w/ Alum Cap |
| 17014 | 405159.912 | 917335.782 | 597.823 | 48.0726197 | -123.7917443 | | | Bar w/ Alum Cap |
| 17015 | 404984.934 | 917277.610 | 600.234 | 48.0721343 | -123.7919546 | | | Bar w/ Alum Cap |
| 17016 | 404724.984 | 917067.654 | 597.389 | 48.0714001 | -123.7927718 | | | Bar w/ Alum Cap |
| 17017 | 404548.900 | 917019.273 | 597.422 | 48.0709126 | -123.7929419 | | | Bar w/ Alum Cap |
| 17018 | 404334.296 | 916954.742 | 597.512 | 48.0703179 | -123.7931719 | | | Bar w/ Alum Cap |
| 17019 | 403990.994 | 916855.964 | 597.150 | 48.0693671 | -123.7935216 | | | Bar w/ Alum Cap |
| 17020 | 403754.398 | 916750.505 | 598.034 | 48.0687078 | -123.7939154 | | | Bar w/ Alum Cap |
| 17021 | 403574.915 | 916585.717 | 598.360 | 48.0681988 | -123.7945607 | | | Bar w/ Alum Cap |
| 17022 | 403333.515 | 916196.216 | 602.882 | 48.0674964 | -123.7961146 | | | Bar w/ Alum Cap |
| 17023 | 403213.464 | 916000.655 | 597.745 | 48.0671469 | -123.7968949 | | | Bar w/ Alum Cap |
| 17024 | 403040.385 | 915781.409 | 598.358 | 48.0666497 | -123.7977637 | | | Bar w/ Alum Cap |
| 17025 | 402965.977 | 915675.368 | 606.629 | 48.0664346 | -123.7981854 | | | Bar w/ Alum Cap |
| 17026 | 402951.325 | 915238.629 | 596.995 | 48.0663484 | -123.7999679 | | | Bar w/ Alum Cap |
| 17027 | 402830.675 | 915000.683 | 597.452 | 48.0659927 | -123.8009214 | | | Bar w/ Alum Cap |
| 17028 | 402752.227 | 914567.859 | 598.038 | 48.0657321 | -123.8026779 | | | Bar w/ Alum Cap |
| 17029 | 402658.986 | 914434.169 | 602.050 | 48.0654625 | -123.8032095 | | | Bar w/ Alum Cap |
| 17030 | 402583.701 | 914290.055 | 599.165 | 48.0652411 | -123.8037866 | | | Bar w/ Alum Cap |
| 17031 | 402455.764 | 914163.670 | 619.788 | 48.0648772 | -123.8042829 | | | Bar w/ Alum Cap |
| 17032 | 402285.191 | 913973.081 | 598.631 | 48.0643898 | -123.8050349 | | | Bar w/ Alum Cap |
| 17033 | 402153.819 | 913832.436 | 599.674 | 48.064015 | -123.8055889 | | | Bar w/ Alum Cap |
| 17034 | 408704.759 | 918046.416 | 596.420 | 48.0824051 | -123.7893965 | | | Bar w/ Alum Cap |
| 17035 | 408535.669 | 917872.665 | 596.920 | 48.0819236 | -123.7900803 | | | Bar w/ Alum Cap |
| 17036 | 402148.638 | 913825.463 | 600.221 | 48.0640001 | -123.8056166 | | | Bar w/ Alum Cap |
| 17037 | 402073.497 | 913690.516 | 599.496 | 48.06378 | -123.8061562 | | | Bar w/ Alum Cap |

*Note: To precisely check distances between points as measured on the ground, inverse the state plane coordinates and divide the computed distance by a mean combined factor of the two points.*

# SURVEY CONTROL

Sheet 1 of 2

J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20- 6-May-2019 12:59 Designed by: A. Designer --/--- Checked by: --/--- D. Checker --/---

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | D.12 |

PROJECT : Spruce Railroad Trail Segment B
DATE OF FIELD WORK : February/November 2017
DATE OF FINAL ADJUSTMENT : February/November/December 2017

GPK FILE DATED N/A

PROJECT UNITS : US SURVEY FOOT
COORDINATE SYSTEM : SPCS NAD83; WA North Zone 4601
EPOCH DATE : 91
VERTICAL DATUM : NAVD88

| POINT NUMBER | STATE PLANE COORDINATES | | | GEO COORDINATES | | | | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| | NORTH | EAST | ELEVATION | LATITUDE | LONGITUDE | ELLIPSOID HEIGHT | COMBINED FACTOR | |
| 17038 | 402039.020 | 913505.394 | 598.501 | 48.0636659 | -123.8069073 | | | Bar w/ Alum Cap |
| 17039 | 402107.275 | 913325.083 | 598.584 | 48.0638338 | -123.8076549 | | | Bar w/ Alum Cap |
| 17040 | 402284.325 | 913108.117 | 602.034 | 48.0642958 | -123.8085695 | | | Bar w/ Alum Cap |
| 17041 | 402399.810 | 913006.629 | 603.566 | 48.0646014 | -123.8090026 | | | Bar w/ Alum Cap |
| 17042 | 402569.442 | 912832.195 | 607.698 | 48.0650476 | -123.8097422 | | | Bar w/ Alum Cap |

*Note: To precisely check distances between points as measured on the ground, inverse the state plane coordinates and divide the computed distance by a mean combined factor of the two points.*

# SURVEY CONTROL

Sheet 2 of 2

J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20- 6-May-2019 12:59 Designed by: A. Designer --/---- Checked by: D. Checker --/----

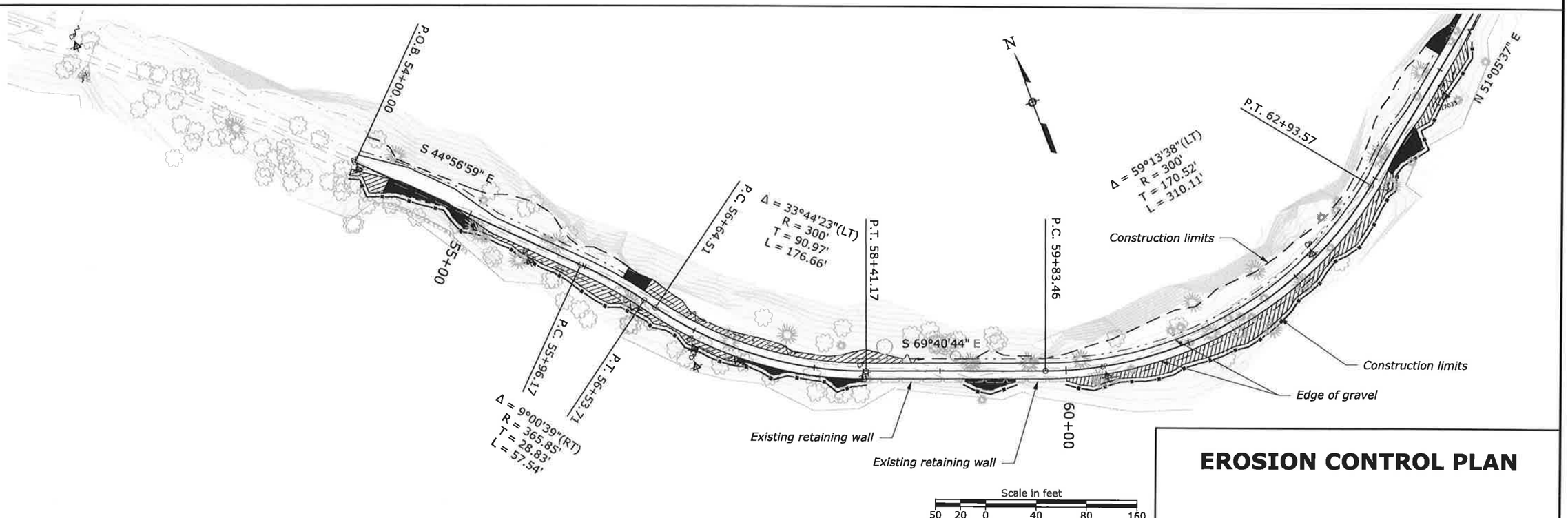
| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | E.1 |

**SOIL EROSION & SEDIMENT CONTROL LEGEND**

- Conserved topsoil and conserved chip debris
- Conserved topsoil, landscape logs and bonded fiber matrix
- Silt fence
- Fiber roll

## PERMANENT SOIL EROSION & SEDIMENT CONTROL QUANTITIES

| ITEM | DESCRIPTION | QUANTITY | UNITS |
|---|---|---|---|
| 15705-0100 | SOIL EROSION CONTROL, SILT FENCE | 8651 | LNFT |
| 15705-1400 | SOIL EROSION CONTROL, FIBER ROLL | 632 | LNFT |
| 62405-0300 | PLACING CONSERVED TOPSOIL, 4-INCH DEPTH | 10211 | SQYD |
| 62515-1000 | MULCHING DRY METHOD, CHIP DEBRIS, 4-INCH DEPTH | 1.8 | ACRE |
| 62515-3000 | MULCHING, HYDRAULIC METHOD, BONDED FIBER MATRIX | 0.3 | ACRE |
| 64703-1000 | MITIGATION, LANDSCAPING LOG | 35 | EACH |

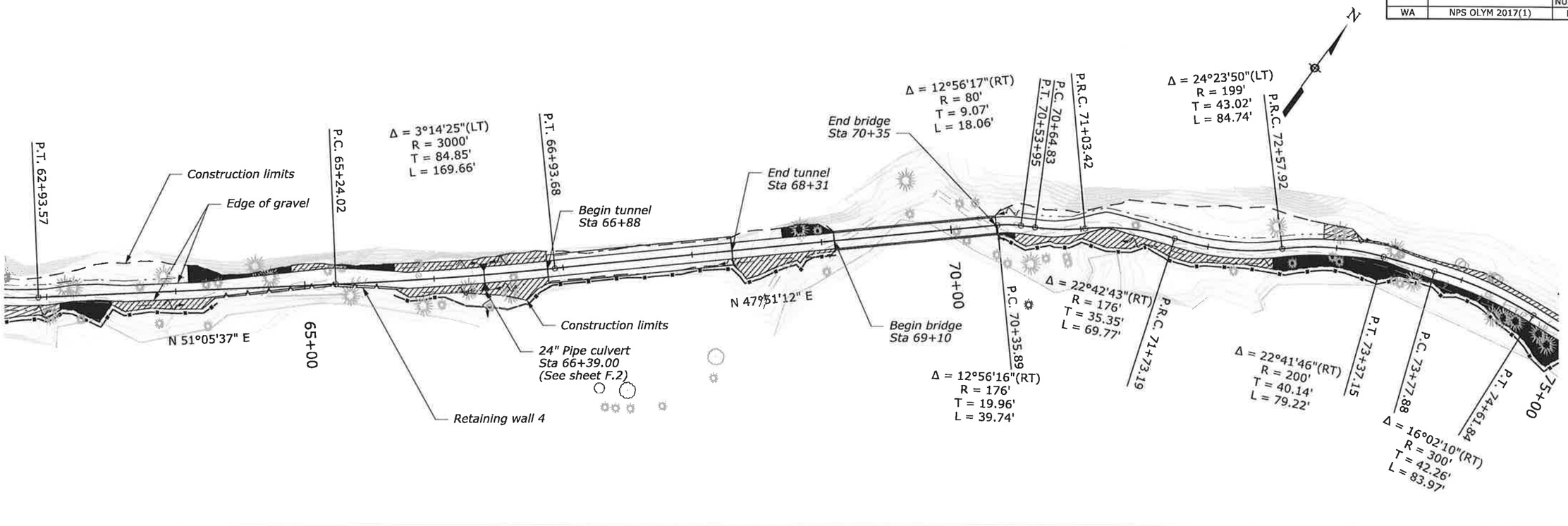


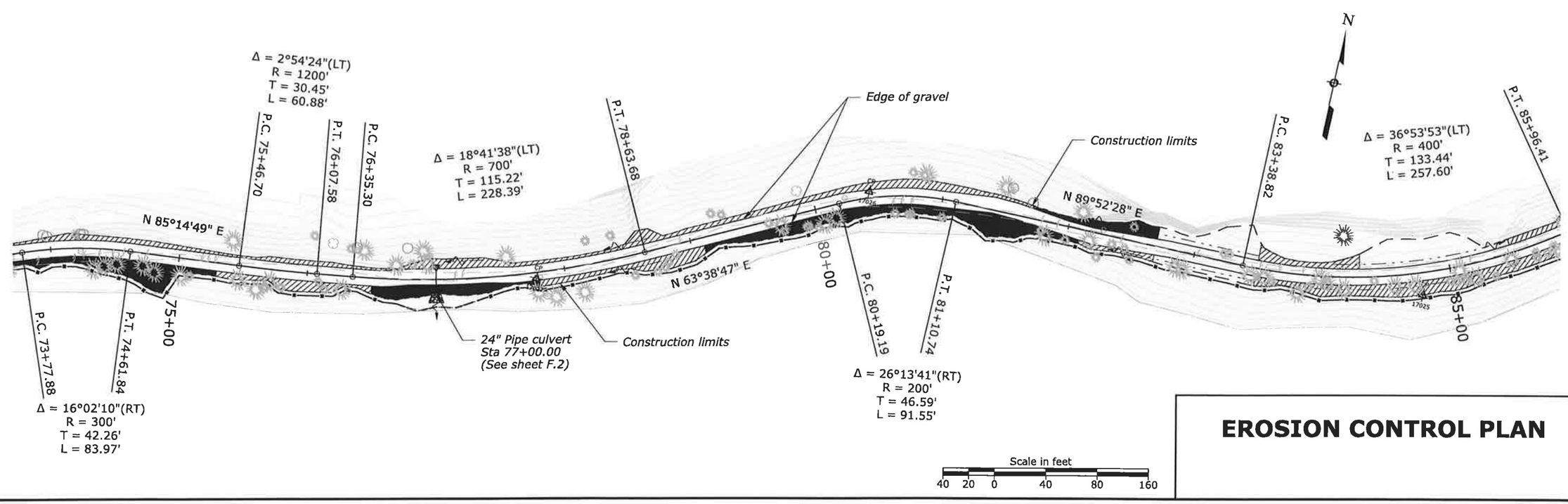

# EROSION CONTROL PLAN

J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_da.dgn [Sur_ft] Designed by: --/--- Checked by: --/---

6 May 2019 1:05 PM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | E.2 |



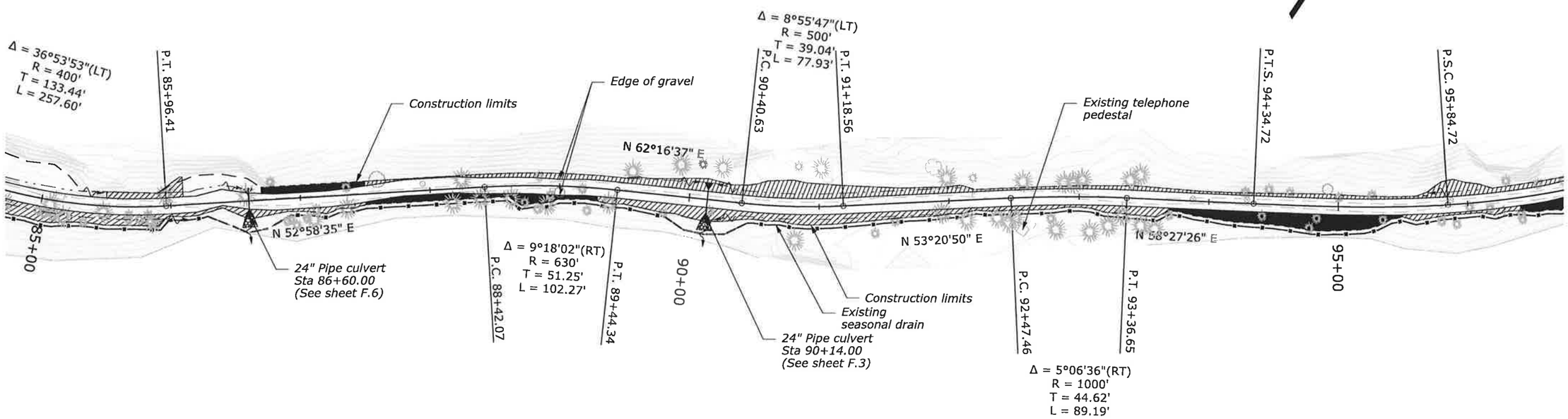

Scale in feet

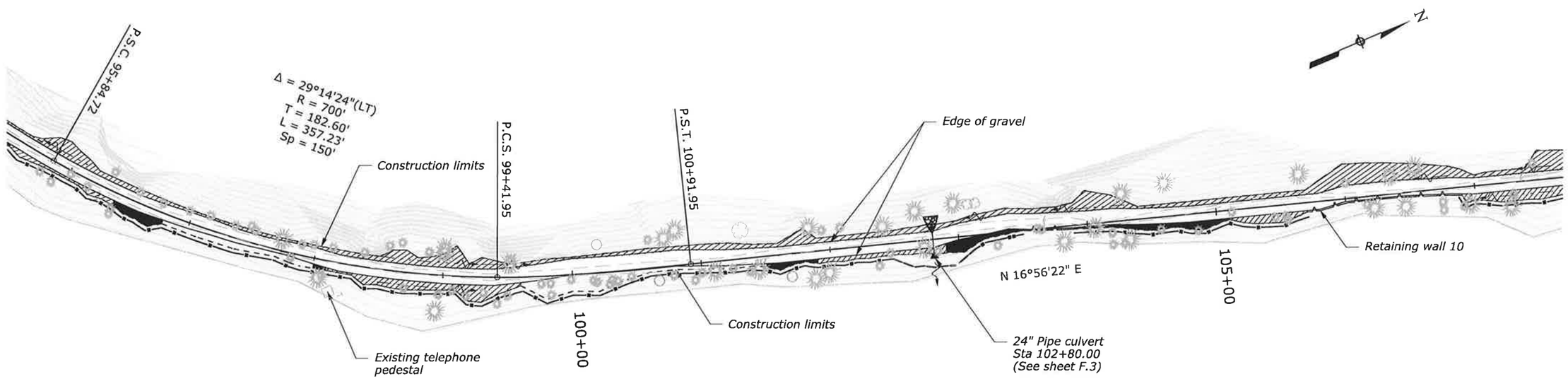
40 20 0 40 80 160

# EROSION CONTROL PLAN

J:\DCS\Projects\TRN\60547135_WFLSpruce8\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_db.dgn [Sur_rt] Designed by: Checked by: --/---- --/---- 6 May 2019 8:22 AM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | E.3 |




Scale in feet

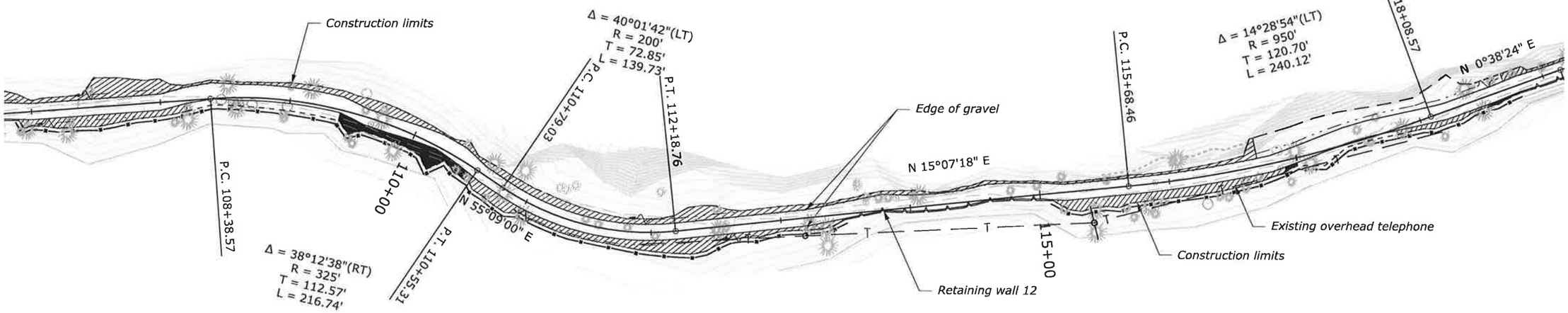
40 20 0 40 80 160

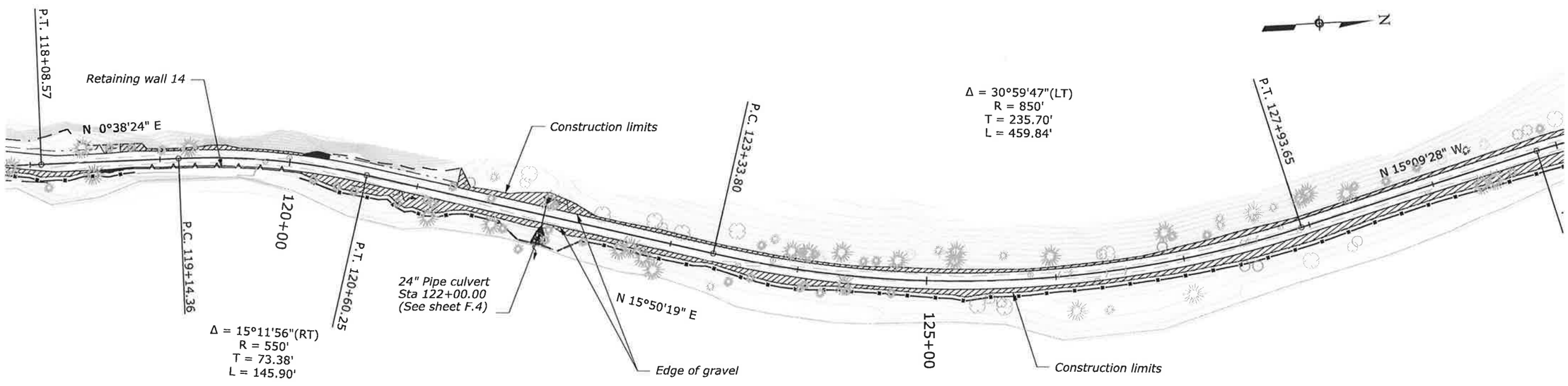
# EROSION CONTROL PLAN

J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_dc.dgn [Sur_ft] Designed by: --/--- Checked by: --/---

6 May 2019 8:32 AM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | E.4 |




Scale in feet

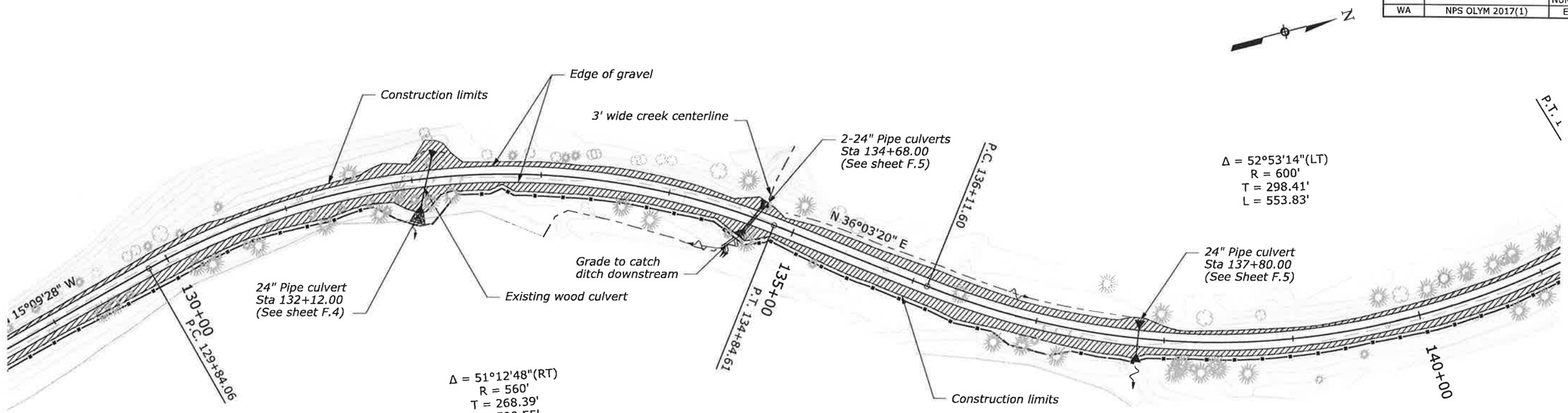
40 20 0 40 80 160

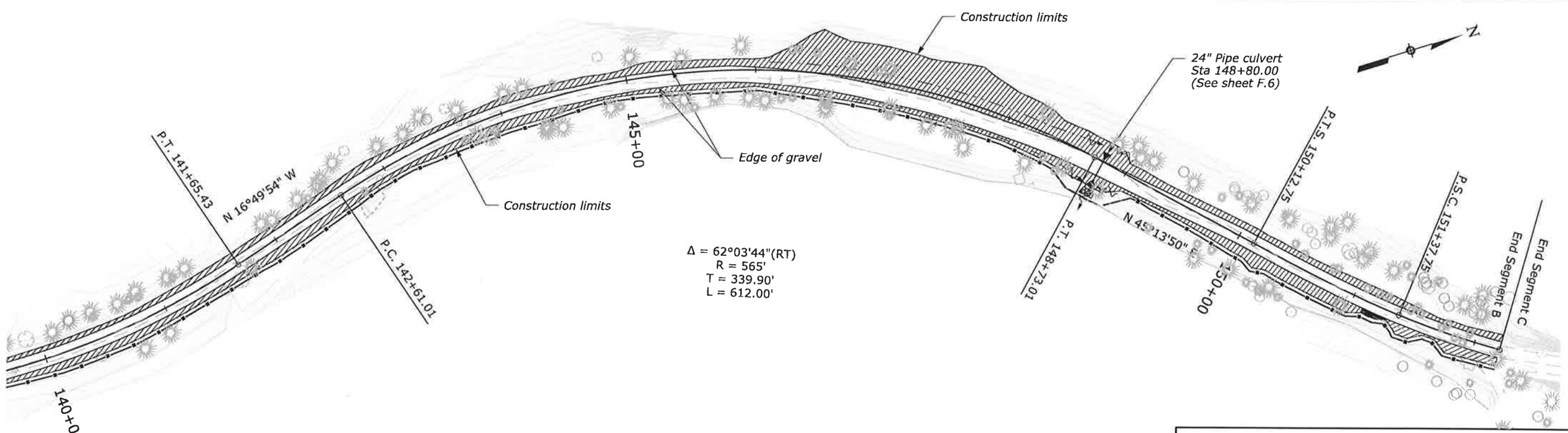
# EROSION CONTROL PLAN

J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_dd.dgn [Sur_ft] Designed by: --/---- Checked by: --/----

6 May 2019 8:31 AM

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| WA | NPS OLYM 2017(1) | E.5 |




# EROSION CONTROL PLAN

J:\DCS\Projects\TRN\60547135_WFLSpruceB\900-CAD-GIS\910-CAD\20-SHEETS\olym201701_de.dgn [Sur_ft] Designed by: --/--- Checked by: --/---

6 May 2019 11:19 AM