

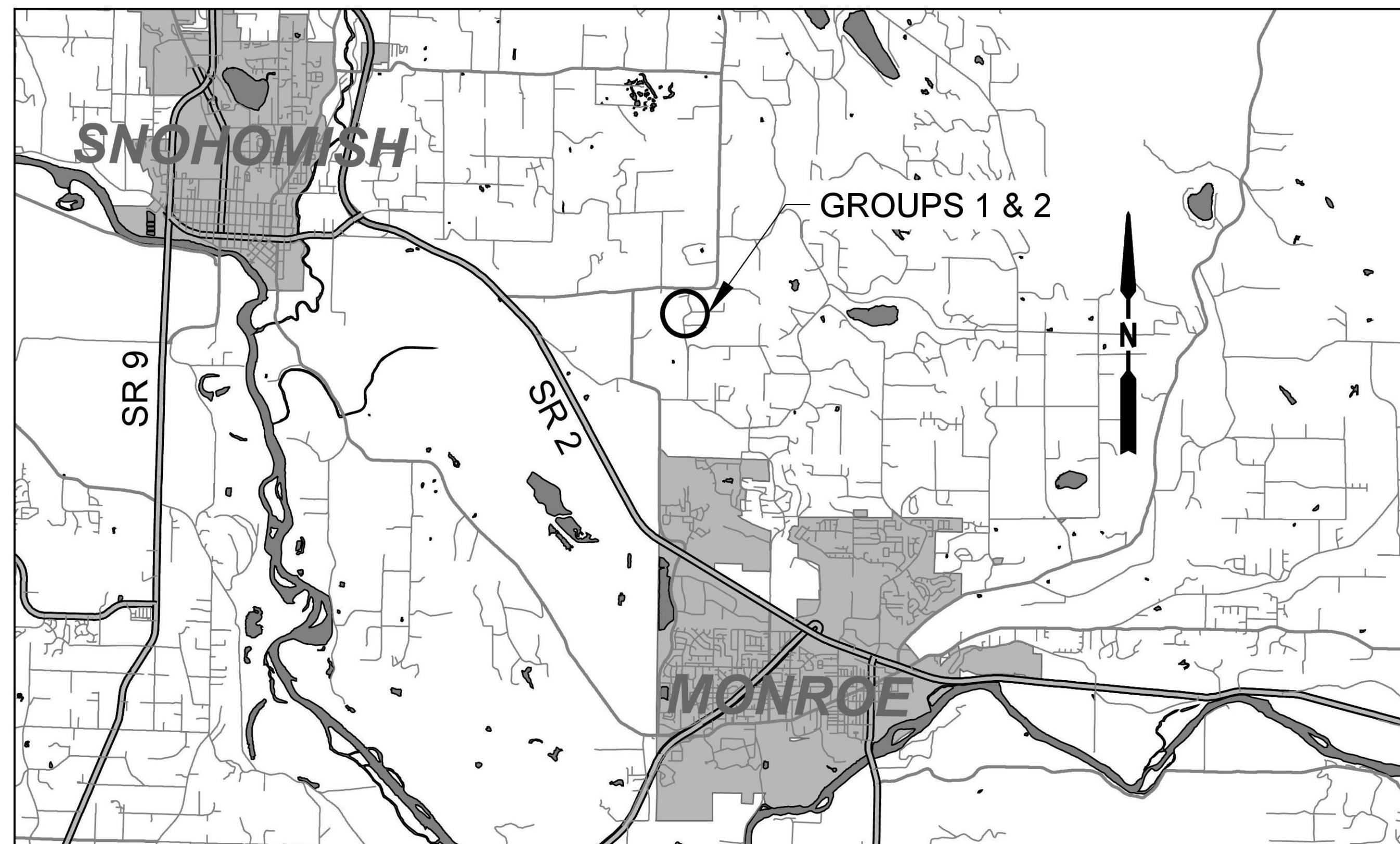
# CULVERT REPLACEMENT NEAR 10101 167TH AVE SE

## SNOHOMISH COUNTY DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

### SURFACE WATER MANAGEMENT

September 23, 2025 - 11:34 AM - SCND1H - X:\CAPITAL\PROJECTS\BID PACKAGES\2025-2028\167TH AVE SE CULVERT REPLACEMENT\PLANS\COVER\CR\_167TH AVE\_COVER.DWG - Layout Name: CV

| SHEET INDEX  |         |
|--|---------|
| SHEET NAME   | SHEET # |
| <b>GROUP 1-WC8684 (UPI 21-0024)</b><br>CULVERT REPLACEMENT NEAR 10101 167TH AVE SE<br>(MP 0.16 167th Ave SE) | 1-16    |
| <b>GROUP 2-WR8684 (UPI 21-0024)</b><br>CULVERT REPLACEMENT NEAR 10101 167TH AVE SE<br>(MP 0.16 167th Ave SE) | 1-4     |



VICINITY MAP  
N.T.S.



### Snohomish County Officials

**DIRECTOR OF CONSERVATION  
AND NATURAL RESOURCES**  
TOM TEIGEN

**COUNTY ENGINEER**  
DOUGLAS W. McCORMICK, P.E.

**EXECUTIVE**  
DAVE SOMERS

**COUNCIL MEMBERS**  
 NATE NEHRING - DIST. 1  
 MEGAN DUNN - DIST. 2  
 STROM PETERSON - DIST. 3  
 JARED MEAD - DIST. 4  
 SAM LOW - DIST. 5

# CULVERT REPLACEMENT NEAR 10101 167TH AVE SE

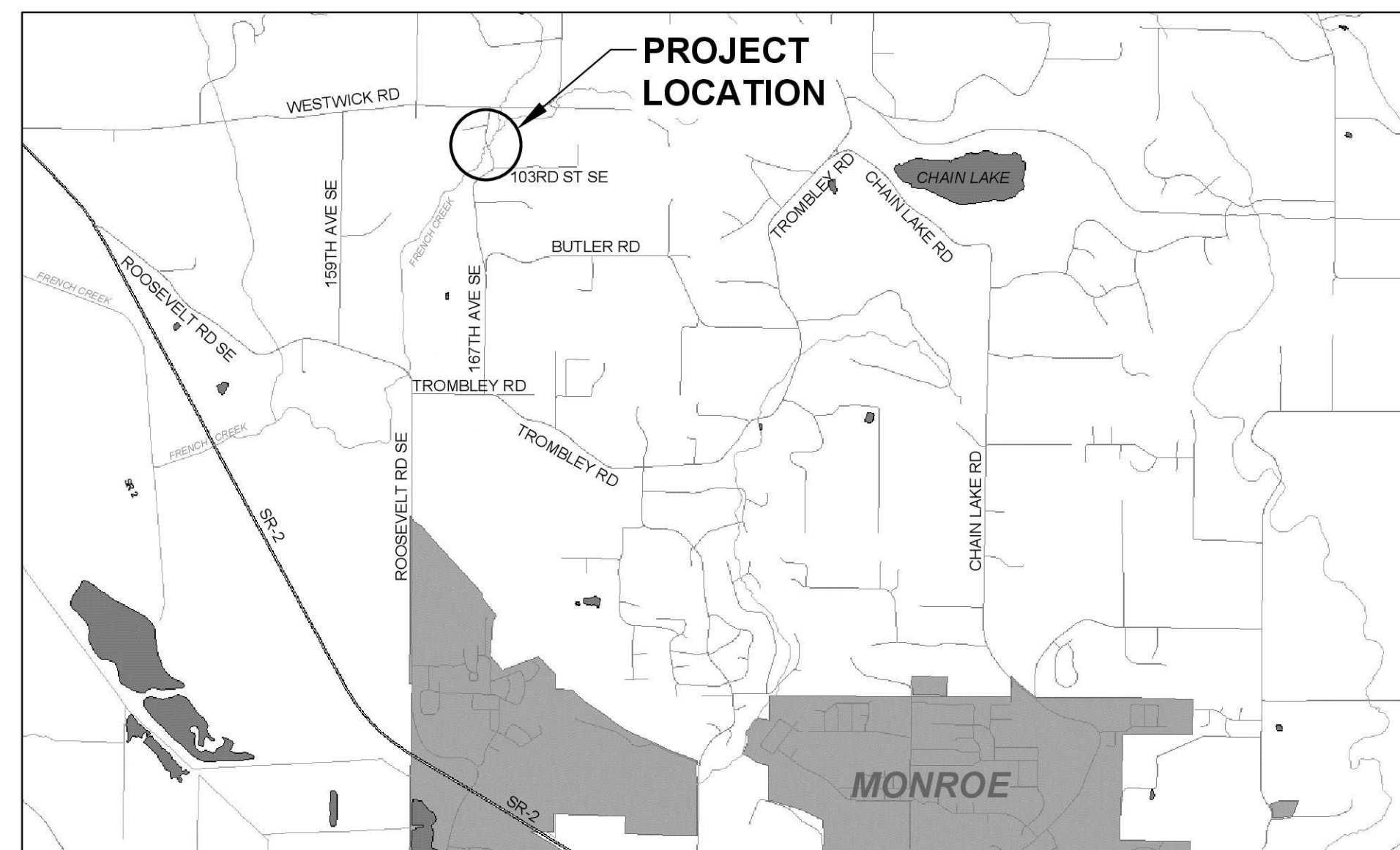
## SNOHOMISH COUNTY DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

### SURFACE WATER MANAGEMENT

### PROJECT #WC8684

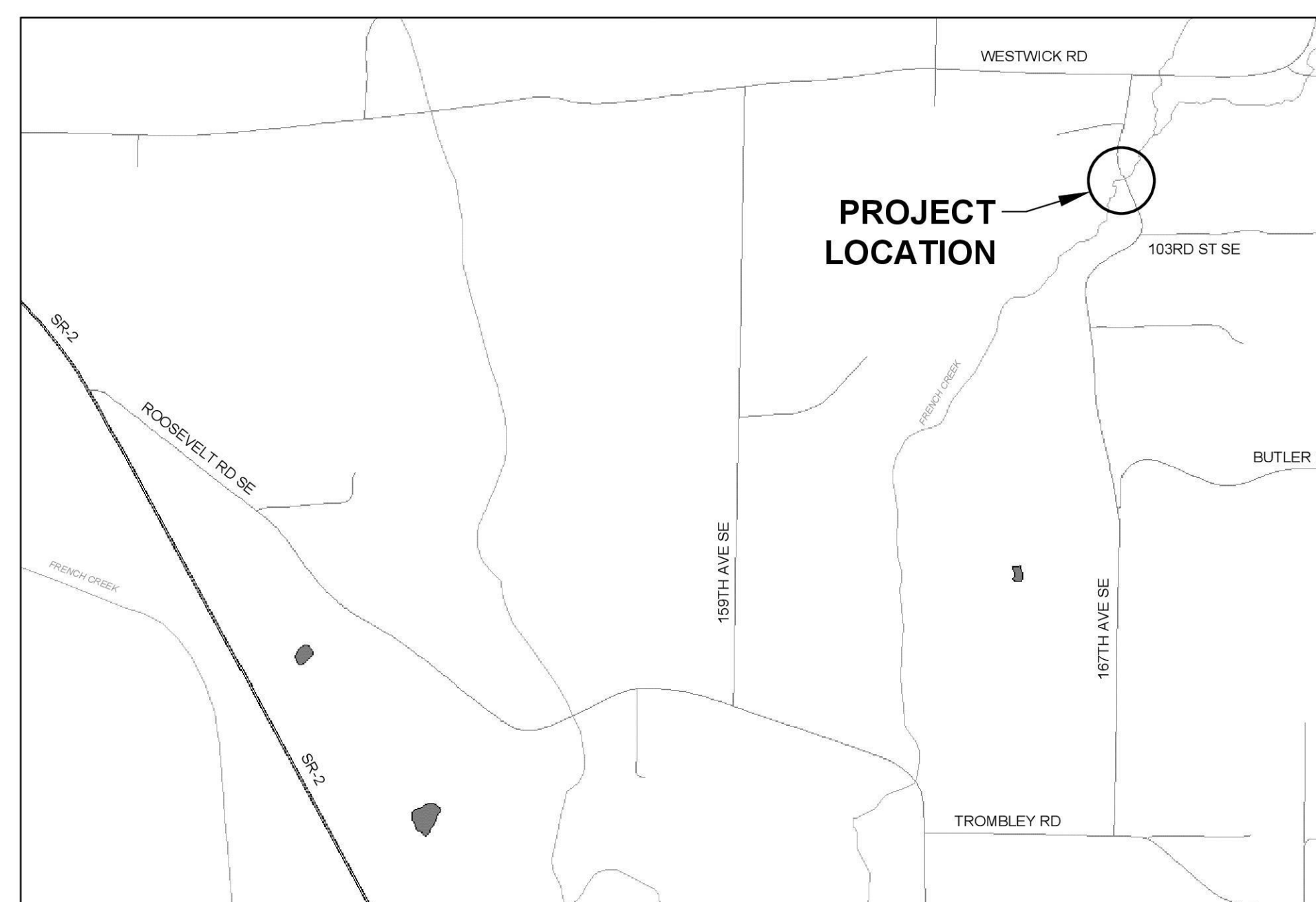
#### SHEET INDEX

| SHEET NAME   | SHEET # | REF #     |
|--|---------|-----------|
| COVER SHEET  | 1       | CV01      |
| GENERAL NOTES, LEGEND, AND ABBREVIATIONS               | 2       | LA01      |
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| STREAM CHANNEL PROFILE                                 | 8       | PR01      |
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| RESTORATION PLAN                                       | 10      | RP01      |
| DETAILS 1-5  | 11-15   | DT01-DT05 |
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**LOCATION MAP**

N.T.S.



**VICINITY MAP**

N.T.S.



#### **Snohomish County Officials**

**DIRECTOR OF PUBLIC WORKS**  
KELLY SNYDER, MPA

**COUNTY ENGINEER**  
DOUGLAS W. McCORMICK, P.E.

**EXECUTIVE**  
DAVE SOMERS

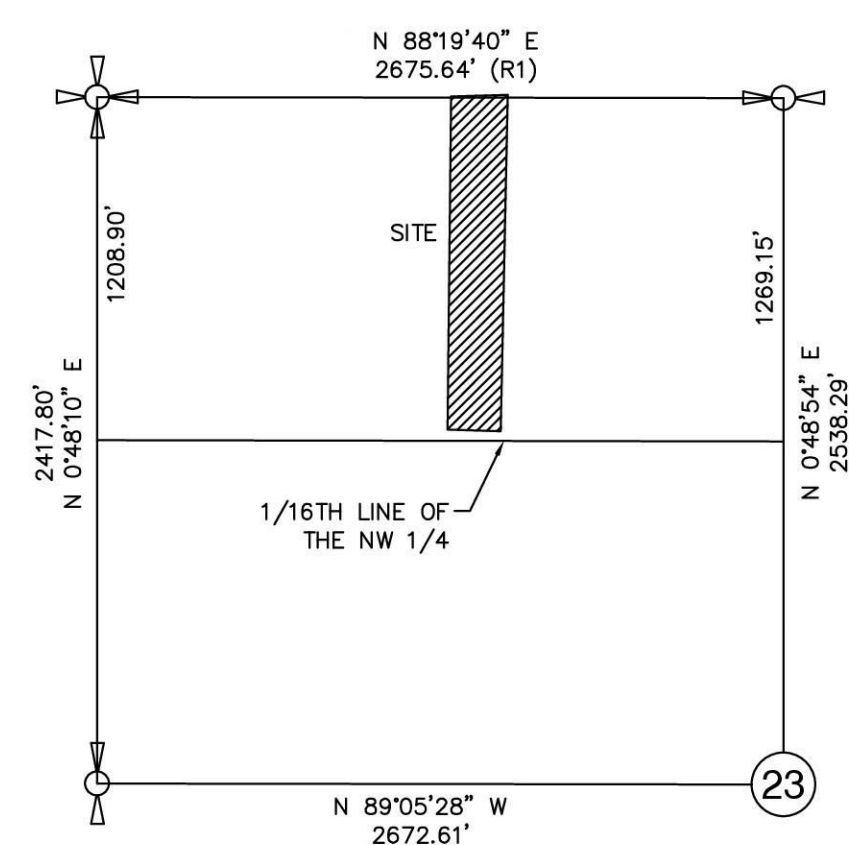
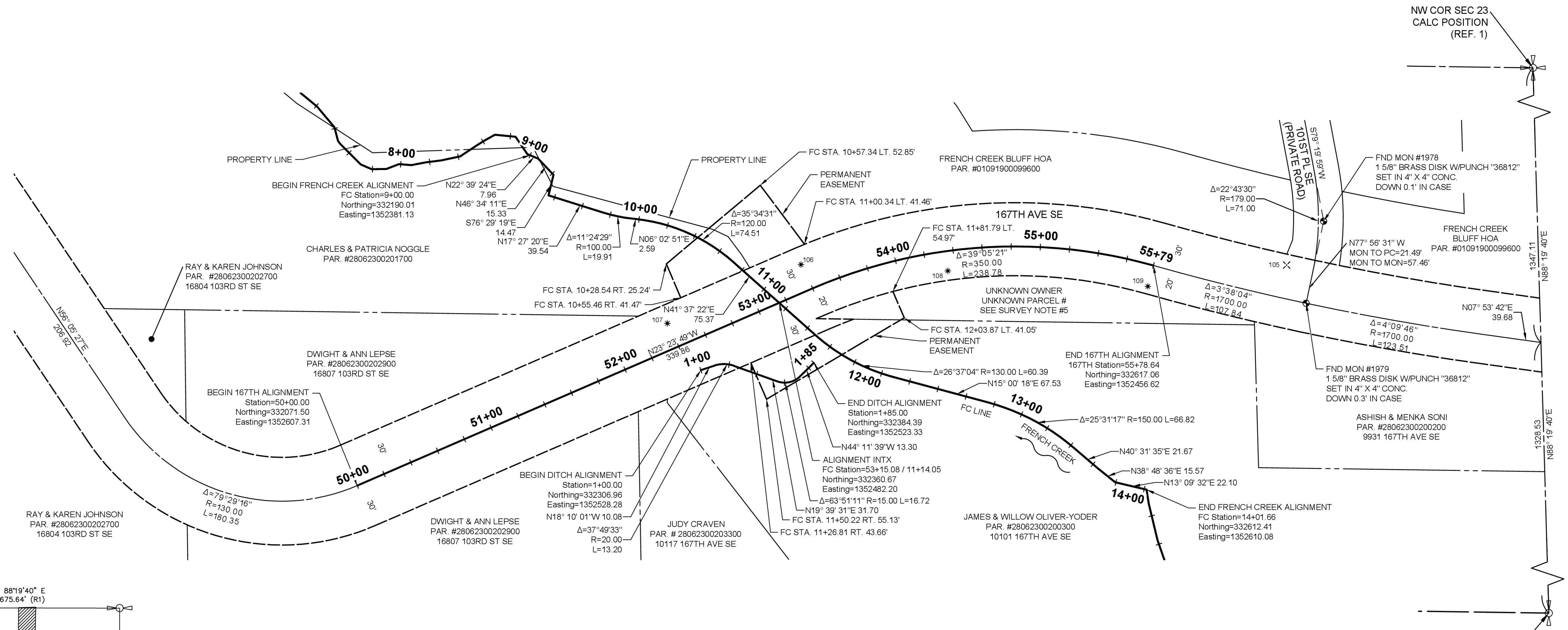
**COUNCIL MEMBERS**  
NATE NEHRING - DIST. 1  
MEGAN DUNN - DIST. 2  
STROM PETERSON - DIST. 3  
JARED MEAD - DIST. 4  
SAM LOW - DIST. 5

**Osborn Consulting**

www.osbornconsulting.com



SECTION 23, T. 28 N, R. 6 E., W.M.



**BASIS OF BEARING**  
 BETWEEN THE FOUND MONUMENTS ALONG 101ST PL SE (PRIVATE ROAD) PER REF. 1.  
 N 77° 56' 31" W, 57.46'

**HORIZONTAL DATUM**  
 WASHINGTON STATE PLANE NORTH ZONE 4601 GRID NAD 83/11  
 THIS PROJECT WAS NOT CONVERTED TO PROJECT COORDINATES SO THERE IS NO CONVERSION FACTOR

**VERTICAL DATUM**  
 NAVD 88

**LEGEND**

- (R\*) REFERENCE NUMBER
- FOUND MONUMENT AS NOTED
- ⊗ SET NAIL AND CONTROL WASHER
- \* SET 5/8" REBAR AND CONTROL CAP
- LINE BREAK
- ⊕ CALCULATED SECTION CORNER PER REF. 1
- ⊖ CALCULATED QUARTER SECTION PER REF. 1

**LINE TYPES**

- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE RIGHT OF WAY
- RIGHT OF WAY LINE
- PROPERTY LINE

**FRENCH CREEK ALIGNMENT COORDINATES**

| STA.        | NORTHING  | EASTING    | DESC.  |
|-------------|-----------|------------|--------|
| FC 8+98.31  | 332733.74 | 1352426.29 | BEG AP |
| FC 14+06.39 | 332721.73 | 1352482.48 | END AP |

**ROCK-LINED DITCH ALIGNMENT COORDINATES**

| STA.        | NORTHING  | EASTING    | DESC. |
|-------------|-----------|------------|-------|
| RLD 1+00.00 | 332306.96 | 1352528.28 | BEG   |
| RLD 1+85.00 | 332384.39 | 1352523.33 | END   |

**SURVEY CONTROL TABLE**

| POINT # | NORTHING  | EASTING    | ELEV.  | DESC.                    |
|---------|-----------|------------|--------|--------------------------|
| 1978    | 332733.74 | 1352426.29 | 165.65 | MONUMENT                 |
| 1979    | 332721.73 | 1352482.48 | 165.06 | MONUMENT                 |
| 105     | 332708.39 | 1352456.32 | 164.18 | PK NAIL & CONTROL WASHER |
| 106     | 332375.59 | 1352456.00 | 136.17 | REBAR & CONTROL CAP      |
| 107     | 332284.00 | 1352496.21 | 134.02 | REBAR & CONTROL CAP      |
| 108     | 332476.21 | 1352460.30 | 141.74 | REBAR & CONTROL CAP      |
| 109     | 332613.28 | 1352470.92 | 156.91 | REBAR & CONTROL CAP      |

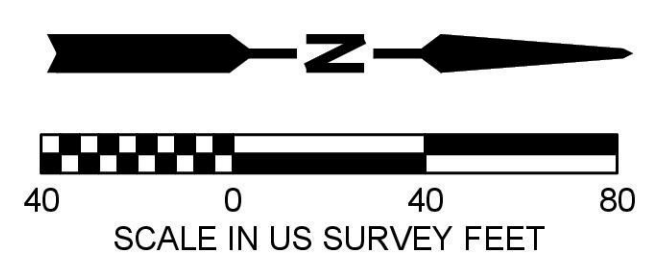
**SURVEYOR'S NOTES**

- ALL PROPERTY LINE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM PUBLICLY AVAILABLE DOCUMENTS AND IN PREPARING THIS MAP 1-ALLIANCE INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH THEREFOR 1-ALLIANCE INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
- ALL DISTANCES ARE IN FEET AND ARE IN PROJECT COORDINATES (GROUND BEARINGS AND DISTANCES) UNLESS OTHERWISE NOTED.
- THIS IS A FIELD TRAVERSE SURVEY BY A LEICA THREE SECOND TOTAL STATION AND GPS RTK TO MEASURE THE ANGULAR AND DISTANCE RELATIONSHIPS BETWEEN THE CONTROLLING MONUMENTATION AS SHOWN. CLOSURE RATIOS OF THE TRAVERSE MET OR EXCEEDED THOSE SPECIFIED IN WAC 332-130-090. ALL MEASURING INSTRUMENTS AND EQUIPMENT ARE MAINTAINED IN ADJUSTMENT ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
- THE RIGHT OF WAY WIDTH WAS SHOWN PER AUDITOR'S MAP AND PER REFERENCE DOCUMENTS BUT COULD NOT BE CONFIRMED PER DEEDS OR TITLE REPORTS.
- THE PARCEL LABELED UNKNOWN OWNER/UNKNOWN PARCEL # IS SHOWN THIS WAY BECAUSE THE LEGAL DESCRIPTION OF PARCEL 28062300200300 IS LOT 1 OF SHORT PLAT PER AFN. 8706030148 (REF. 2). IT IS A PORTION OF THE NE 1/4 OF THE NW 1/4 AND THE UNKNOWN PARCEL IS WITHIN THE NW 1/4 OF THE NW 1/4.

**REFERENCES**

- FRENCH CREEK BLUFF, A RURAL CLUSTER SUBDIVISION, SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 200801235190
- DECLARATION OF SHORT SUBDIVISION, VOL. 2060, PGS 117-126, SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 8706030148
- RECORD OF SURVEY FOR CAROL D. SHOCKLEY, SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 7611190296

**1 ALLIANCE GEOMATICS SURVEYING & MAPPING**  
 1261A 120TH AVE NE Bellevue, Washington 98005  
 Ph: (425) 598-2200 Fax: (425) 502-8067



**GROUP 1**

|      |     |                  |                     |  |   |  |   |  |                          |
|------|-----|------------------|---------------------|--|---|--|---|--|--------------------------|
|      |     | UPI NO.: 21-0024 | FED. AID PROJ. NO.: |  | REVIEWED AND APPROVED FOR CONSTRUCTION<br><i>Douglas W. McCormick</i><br>DOUGLAS W. McCORMICK, P.E.<br>SNOHOMISH COUNTY ENGINEER<br>10/6/2025<br>DATE APPROVED: | <b>SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS</b> | <b>CULVERT REPLACEMENT FRENCH CREEK</b> | <b>SURVEY CONTROL AND ALIGNMENT PLAN</b> | REFERENCE SHEET NO. CP01 |
| DATE | NO. | REVISION         | BY                  |  |   |  |   |  | SHEET 1 OF 1 SHEETS      |

August 23, 2024 - 5:49 PM - L:\OSBN\_21-062-SNOCO 2021-OC CULVERTS\03000CADBASES\21062-167TH ROW PLANS-OSBORN STB.DWG - Layout Name: 4 SURVEY CONTROL AND ALIGNMENT PLAN



SECTION 23, T. 28 N, R. 6 E., W.M.

GENERAL NOTES:

- DISTURBANCE SHALL BE MINIMIZED TO THE AREA NECESSARY FOR INSTALLATION OF TEMPORARY AND PERMANENT ITEMS. TEMPORARY CONSTRUCTION EASEMENTS SHALL BE DELINEATED WITH HIGH VISIBILITY FENCE AS SHOWN. WORK OUTSIDE OF THE RIGHT-OF-WAY SHALL ONLY OCCUR WITHIN THE LIMITS OF THE TEMPORARY CONSTRUCTION EASEMENTS (SEE TABLE THIS SHEET). IN PAVEMENT AREAS, USE WHITE MARKING PAINT TO DENOTE THE WORK LIMITS.
- UTILITY LOCATIONS AND TYPES SHOWN ARE APPROXIMATE. UTILITY PROVIDERS ARE RESPONSIBLE FOR RELOCATION PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH UTILITY PROVIDERS TO PROVIDE APPROPRIATE PROTECTION DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH SNOPOD ABOUT OVERHEAD UTILITIES.
- CONTRACTOR SHALL COORDINATE WITH COUNTY STAFF WHO WILL INSTALL FISH SCREENS AND REMOVE FISH FROM WORK AREA PRIOR TO COMMENCING CONSTRUCTION. APPLICABLE STATE AND FEDERAL REGULATIONS SHALL BE FOLLOWED. SEE CONTRACT PROVISIONS.
- PROTECT ALL TREES WITHIN THE CONSTRUCTION LIMITS PER DETAIL 1 ON SHEET 14, UNLESS NOTED FOR REMOVAL IN THIS SHEET.
- ONLY REMOVE THE MINIMUM VEGETATION NEEDED FOR CONSTRUCTION. CLEARING LIMITS SHOULD BE OFFSET 3-FT FROM THE TEMPORARY EASEMENT LIMITS UNLESS OTHERWISE NOTED IN THE CLEARING LIMITS POINT TABLE.
- TESC AND TEMPORARY STREAM DIVERSION SHOWN ARE PROPOSED CONCEPTS. THE TEMPORARY STREAM DIVERSION MAY BE PHASED IN ORDER TO UTILIZE THE EXISTING STREAM CHANNEL TO THE EXTENT FEASIBLE DURING CONSTRUCTION. CONTRACTOR TO SUBMIT TESC AND TEMPORARY STREAM DIVERSION PLANS FOR APPROVAL PRIOR TO BEGINNING OF WORK. SEE SPECIAL PROVISION "TEMPORARY STREAM DIVERSION" AND CONCEPTUAL STREAM DIVERSION SEQUENCE.

## SITE PREPARATION, TEMPORARY STREAM DIVERSION, AND TESC NOTES:

- PROTECT EXISTING
  - CULVERT
  - MAILBOX
  - SIGN, SALVAGE FOR REINSTALLATION
  - POWER BOX
- REMOVE EXISTING
  - CULVERT, WINGWALLS, AND FOUNDATION
  - CONCRETE WEIR
  - CONCRETE WALL
  - GUARDRAIL, TO THE CLOSEST SPLICE IN THE GUARDRAIL CONSTRUCTION TABLE IN SHEET 11.
- COORDINATE RELOCATION AND PROTECTION OF UTILITIES WITH UTILITY PROVIDERS. SEE UTILITY RELOCATION PLANS IN THE APPENDIX INCLUDED IN THE BID PACKAGE.
  - WATER MAIN
  - WATER SERVICE
  - POWER POLE
  - ABOVEGROUND POWER LINE
  - UNDERGROUND POWER LINE
  - ABOVEGROUND COMMUNICATION LINE
  - UNDERGROUND COMMUNICATION LINE
  - TEMPORARY POWER POLE SUPPORT
- MAINTAIN RESIDENTIAL ACCESS.
- INSTALL HIGH VISIBILITY FENCE PER WSDOT STANDARD PLAN I-10.10-01.
- INSTALL WATTLE PER WSDOT STANDARD PLAN I-30.30-02.
- INSTALL GRAVEL BAG BERM PER DETAIL 2 SHEET 14. COLLECT RUNOFF AND ROUTE AROUND CONSTRUCTION AREA.
- INSTALL FILTER BAG PER DETAIL 3 SHEET 14 FOR SEDIMENT REMOVAL FROM ANY DEWATERING ACTIVITIES THAT MAY BE NECESSARY DURING CONSTRUCTION.
- CONSTRUCT TEMPORARY ACCESS INCLUDING STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STANDARD PLAN I-80.10-02. TEMPORARY ACCESS SHOWN IS A PROPOSED CONCEPT. SEE SPECIAL PROVISION "TEMPORARY ACCESS".
- REMOVE LARGE WOODY MATERIAL PIECES. STOCKPILE ON SITE, TO BE PLACED AS DIRECTED BY THE ENGINEER.
- COUNTY WILL REMOVE COUNTY-OWNED STREAM GAUGE POWER BOX AND EQUIPMENT BEFORE CONSTRUCTION.

CONCEPTUAL STREAM DIVERSION SEQUENCE:

- INSTALL TEMPORARY COFFERDAMS (1) (2) PER DETAIL 4 SHEET 14. INSTALL TEMPORARY QUARRY SPALL MAT (3). INSTALL TEMPORARY STREAM DIVERSION (4). REMOVE EXISTING CULVERT AND CONSTRUCT PROPOSED CHANNEL FROM STATION 10+21.83 TO APPROXIMATELY STATION 13+00.
- AS NEEDED, INSTALL TEMPORARY STREAM DIVERSION FOR TRIBUTARY CHANNEL. INSTALL TEMPORARY COFFERDAM (5) PER DETAIL 4 SHEET 14. INSTALL TEMPORARY STREAM DIVERSION (6). DISCHARGE TO QUARRY SPALL MAT (3).
- INSTALL TEMPORARY COFFERDAM (7) PER DETAIL 4 SHEET 14. INSTALL TEMPORARY STREAM DIVERSION (8). CONSTRUCT PROPOSED CHANNEL FROM APPROXIMATELY STATION 13+00 TO STATION 13+48.04.
- REMOVE ALL TEMPORARY STREAM DIVERSION MEASURES INCLUDING BUT NOT LIMITED TO COFFERDAMS, PUMPS, PIPES, AND TEMPORARY QUARRY SPALL MATS.

GROUP 1

LEGEND:

- CLEARING LIMITS
- REMOVE TREE
- HIGH VISIBILITY FENCE
- FILTER BAG
- GRAVEL BERM BAG
- STRAW WATTLE
- COFFER DAM
- TEMPORARY STREAM DIVERSION PIPE
- PUMPED TEMPORARY STREAM DIVERSION PIPE
- TEMPORARY QUARRY SPALL MAT

TCE POINT TABLE

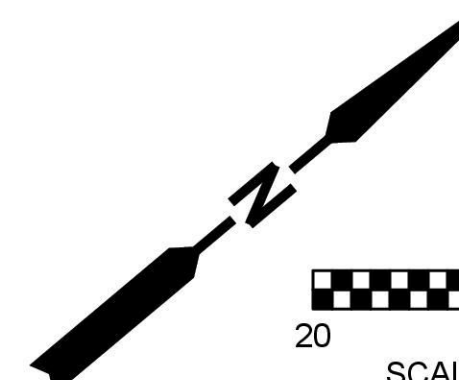
| POINT ID | NORTHING  | EASTING    | DESCRIPTION |
|----------|-----------|------------|-------------|
| TCE-1    | 332544.10 | 1352464.29 | TEMP ESMT   |
| TCE-2    | 332542.06 | 1352495.23 | TEMP ESMT   |
| TCE-3    | 332608.41 | 1352576.35 | TEMP ESMT   |
| TCE-4    | 332567.44 | 1352624.27 | TEMP ESMT   |
| TCE-5    | 332326.59 | 1352569.94 | TEMP ESMT   |
| TCE-6    | 332306.70 | 1352538.23 | TEMP ESMT   |
| TCE-7    | 332262.94 | 1352491.29 | TEMP ESMT   |
| TCE-8    | 332226.00 | 1352490.76 | TEMP ESMT   |
| TCE-9    | 332222.34 | 1352472.79 | TEMP ESMT   |
| TCE-10   | 332250.96 | 1352382.40 | TEMP ESMT   |
| TCE-11   | 332348.55 | 1352397.50 | TEMP ESMT   |
| TCE-12   | 332455.32 | 1352401.30 | TEMP ESMT   |
| TCE-13   | 332458.44 | 1352419.00 | TEMP ESMT   |

CLEARING LIMITS POINT TABLE

| POINT ID | NORTHING  | EASTING    | DESCRIPTION |
|----------|-----------|------------|-------------|
| CL-1     | 332541.48 | 1352458.44 | CLRG LMTS   |
| CL-2     | 332539.06 | 1352495.18 | CLRG LMTS   |
| CL-3     | 332533.55 | 1352495.78 | CLRG LMTS   |
| CL-4     | 332534.74 | 1352519.96 | CLRG LMTS   |
| CL-5     | 332566.32 | 1352540.88 | CLRG LMTS   |
| CL-6     | 332575.50 | 1352550.43 | CLRG LMTS   |
| CL-7     | 332598.70 | 1352583.09 | CLRG LMTS   |
| CL-8     | 332566.34 | 1352620.95 | CLRG LMTS   |
| CL-9     | 332328.47 | 1352567.28 | CLRG LMTS   |
| CL-10    | 332303.72 | 1352531.55 | CLRG LMTS   |
| CL-11    | 332304.02 | 1352527.14 | CLRG LMTS   |

CLEARING LIMITS POINT TABLE

| POINT ID | NORTHING  | EASTING    | DESCRIPTION |
|----------|-----------|------------|-------------|
| CL-12    | 332308.46 | 1352517.02 | CLRG LMTS   |
| CL-13    | 332273.16 | 1352507.63 | CLRG LMTS   |
| CL-14    | 332264.86 | 1352488.43 | CLRG LMTS   |
| CL-15    | 332228.47 | 1352487.87 | CLRG LMTS   |
| CL-16    | 332225.44 | 1352472.95 | CLRG LMTS   |
| CL-17    | 332253.04 | 1352385.76 | CLRG LMTS   |
| CL-18    | 332348.26 | 1352400.49 | CLRG LMTS   |
| CL-19    | 332452.79 | 1352404.22 | CLRG LMTS   |
| CL-20    | 332455.51 | 1352419.51 | CLRG LMTS   |
| CL-21    | 332463.71 | 1352418.33 | CLRG LMTS   |
| CL-22    | 332467.05 | 1352435.04 | CLRG LMTS   |



September 22, 2025 - 3:23 PM - MIKEM - C:\PW\_OSBORN\_WORKING\DWG\421-0024-EC.DWG - Layout Name: 5 SITE PREPARATION TEMPORARY STREAM DIVERSION AND TESC

| DATE | NO. | REVISION | BY |
|------|-----|----------|----|
|      |     |          |    |
|      |     |          |    |
|      |     |          |    |



|                        |                         |
|------------------------|-------------------------|
| UPI NO.:<br>21-0024    | FED. AID PROJ. NO.:     |
| SURVEY NO.:            | FIELD BOOK(S):          |
| HORZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF/MP | DRAWN BY:<br>JAR        |



REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. MCCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER  
10/6/2025  
DATE APPROVED:

SNOHOMISH COUNTY  
DEPARTMENT OF  
CONSERVATION AND  
NATURAL RESOURCES

FUNDING NO. WC8684

CULVERT REPLACEMENT  
NEAR 10101 167TH AVE SE

SITE PREPARATION, TEMPORARY  
STREAM DIVERSION, AND TESC

|                                  |
|----------------------------------|
| REFERENCE SHEET NO.<br>EC01      |
| SHEET<br>5<br>OF<br>16<br>SHEETS |

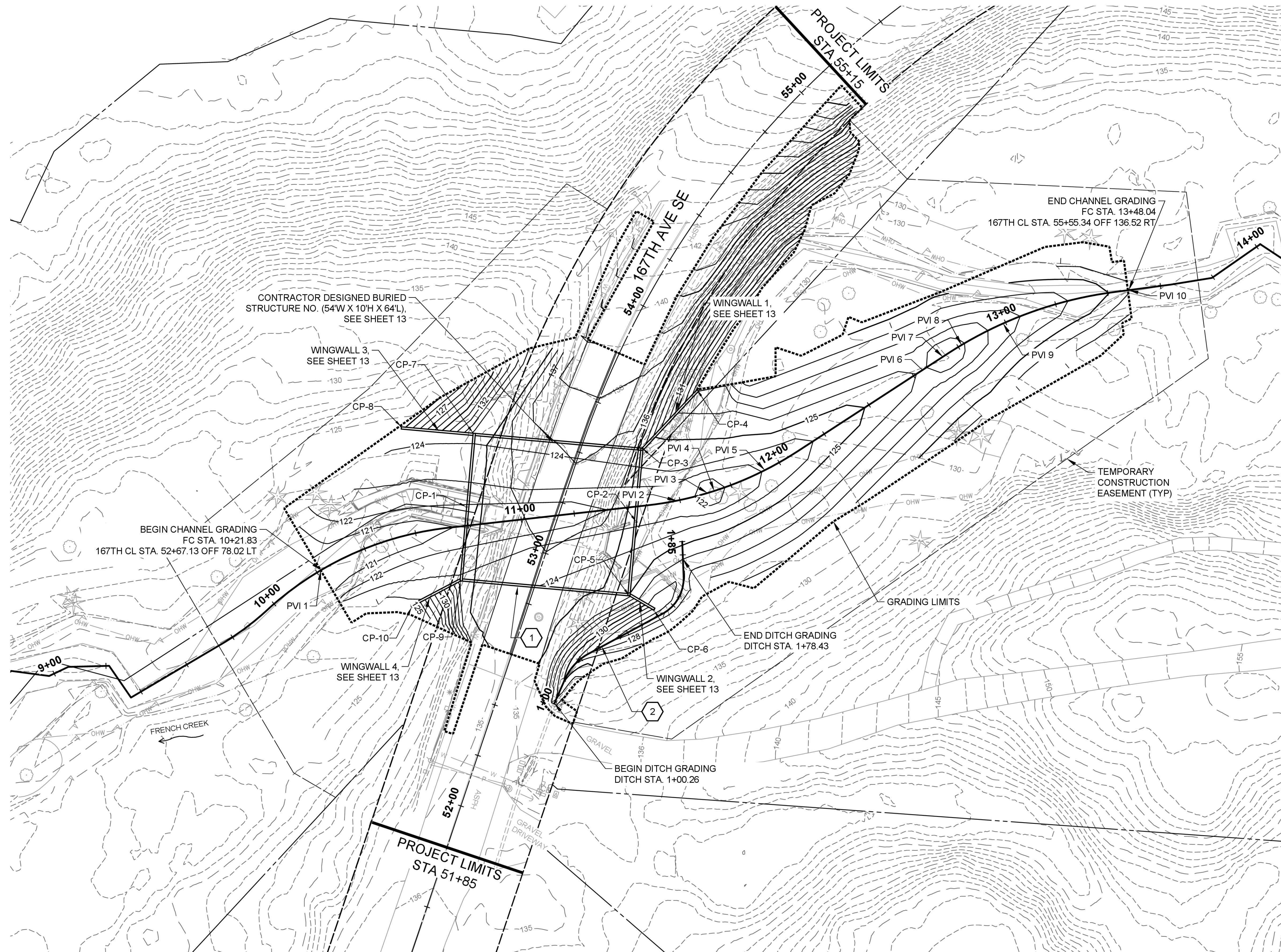
SECTION 23, T. 28 N, R. 6 E., W.M.

GENERAL NOTES:

- SEE SHEETS 7 & 8 FOR PROPOSED STREAM CHANNEL PLAN AND PROFILE.
- SEE SHEET 9 FOR STREAM SECTIONS.
- SEE SHEET 10 FOR RESTORATION OF DISTURBED AREAS.
- SEE DETAIL 5 SHEET 14 FOR TYPICAL TRENCH DETAIL.
- GRADING LIMITS SHOWN ONLY ENCOMPASS THE AREA RELATED TO THE CREEK AND DITCH GRADING.
- CONTRACTOR TO INSTALL UTILITY CONDUITS PROVIDED BY UTILITY PROVIDERS.

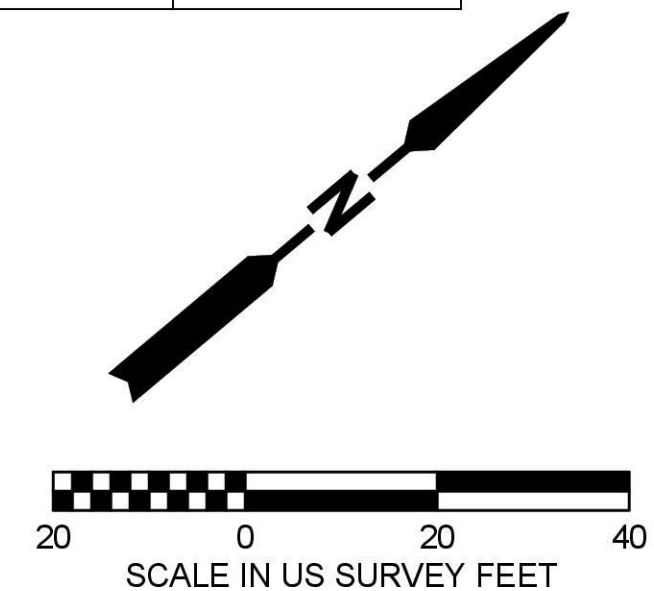
CONSTRUCTION NOTES:

- INSTALL CONTRACTOR DESIGNED BURIED STRUCTURE NO. (54W X 10H X 64L) AT 75 DEGREE CLOCKWISE SKEW TO ROADWAY CENTER LINE. SEE SHEET 13.
- INSTALL DITCH. SEE DITCH PROFILE SHEET 8. SEE DETAIL 4 SHEET 15 FOR TYPICAL DITCH SECTION.



| CONSTRUCTION POINT TABLE |          |          |                              |
|--------------------------|----------|----------|------------------------------|
| POINT ID                 | RLD STA. | OFFSET   | DESCRIPTION                  |
| CP-1                     | 53+07.07 | 33.66' L | CENTERLINE STRUCTURE OPENING |
| CP-2                     | 53+21.99 | 28.58' R | CENTERLINE STRUCTURE OPENING |
| CP-3                     | 53+49.56 | 21.56' R | BEGIN WINGWALL 1             |
| CP-4                     | 53+80.18 | 32.19' R | END WINGWALL 1               |
| CP-5                     | 52+94.88 | 34.89' R | BEGIN WINGWALL 2             |
| CP-6                     | 52+92.72 | 45.23' R | END WINGWALL 2               |
| CP-7                     | 53+34.13 | 40.16' L | BEGIN WINGWALL 3             |
| CP-8                     | 53+27.84 | 66.42' L | END WINGWALL 3               |
| CP-9                     | 52+80.07 | 26.93' L | BEGIN WINGWALL 4             |
| CP-10                    | 52+65.07 | 41.24' L | END WINGWALL 4               |

| PVI TABLE |             |               |
|-----------|-------------|---------------|
| PVI #     | PVI STATION | PVI ELEVATION |
| PVI 1     | 10+21.83    | 120.09        |
| PVI 2     | 11+58.89    | 122.46        |
| PVI 3     | 11+70.70    | 121.67        |
| PVI 4     | 11+73.34    | 121.72        |
| PVI 5     | 11+93.89    | 123.09        |
| PVI 6     | 12+64.03    | 126.12        |
| PVI 7     | 12+73.13    | 125.51        |
| PVI 8     | 12+81.42    | 125.87        |
| PVI 9     | 12+99.03    | 127.63        |
| PVI 10    | 13+48.04    | 130.03        |



September 22, 2025 - 3:24 PM - MIKEM - C:\PW\_OSORN\_WORKING\DWG\421-0024-GP.DWG - Layout Name: 7 GRADING PLAN

| DATE | NO. | REVISION | BY |
|------|-----|----------|----|
|      |     |          |    |
|      |     |          |    |
|      |     |          |    |



|                         |                         |
|-------------------------|-------------------------|
| UPI NO.:<br>21-0024     | FED. AID PROJ. NO.:     |
| SURVEY NO.:             | FIELD BOOK(S):          |
| HORIZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF/MP  | DRAWN BY:<br>JAR        |



REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. McCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER

10/6/2025  
DATE APPROVED:

SNOHOMISH COUNTY  
DEPARTMENT OF  
CONSERVATION AND  
NATURAL RESOURCES

FUNDING NO. WC8684

GROUP 1

CULVERT REPLACEMENT  
NEAR 10101 167TH AVE SE

GRADING PLAN

|                             |
|-----------------------------|
| REFERENCE SHEET NO.<br>GP01 |
| SHEET 6 OF 16 SHEETS        |

SECTION 23, T. 28 N, R. 6 E., W.M.

**GENERAL NOTES:**

1. WORK OUTSIDE RIGHT-OF-WAY COMPLETED UNDER RIGHT OF TEMPORARY CONSTRUCTION EASEMENT. CONSTRUCTION LIMITS AS DEFINED ON SHEET 5 REPRESENT THE EXTENT OF TEMPORARY CONSTRUCTION EASEMENTS.
2. SEE SHEET 8 FOR CHANNEL PROFILE AND STREAMBED MATERIAL GRADATION.
3. SEE SHEET 9 FOR TYPICAL STREAM AND STRUCTURE CROSS SECTIONS. PLACE STREAMBED MATERIAL IN STRUCTURE PER SECTION A SHEET 9.

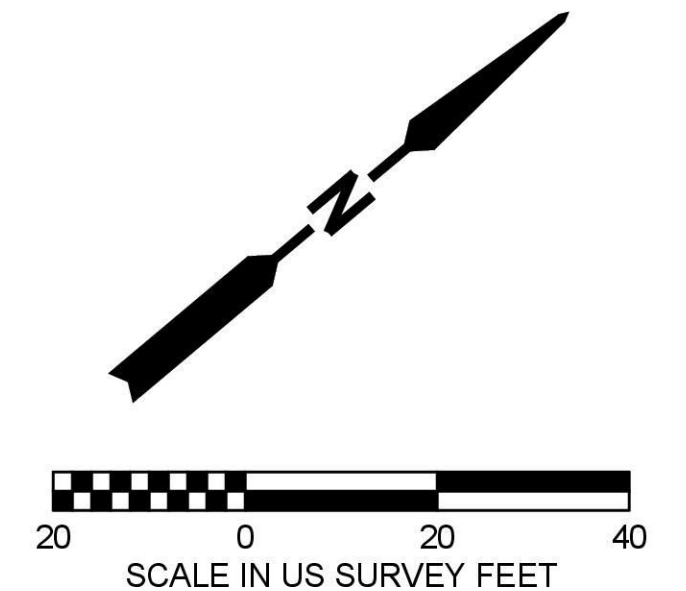
**## CONSTRUCTION NOTES:**

1. MEANDER BAR PER DETAIL 2, SHEET 11.
2. DEFORMABLE GRADE CONTROL PER DETAIL 1, SHEET 11.
3. LOCATIONS AND ORIENTATIONS OF LOG PIECES AS SHOWN ON THIS SHEET ARE APPROXIMATE. SEE LOG SCHEDULE ON SHEET 12. LOG LOCATION SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER IN THE FIELD.

**LOG LEGEND - WOODY MATERIAL:**

- LOG WITH ROOTWAD DBH 30"
- LOG WITH ROOTWAD DBH 24"
- LOG WITH ROOTWAD DBH 18"
- LOG WITHOUT ROOTWAD DBH 30"
- EXPOSED LOG (TYP)
- BURIED LOG (TYP)
- DEFORMABLE GRADE CONTROL
- GRADING LIMITS
- MEANDER BAR

| DEFORMABLE GRADE CONTROL REFERENCE POINT |          |
|--|----------|
| ID                                       | STATION  |
| DGC-1                                    | 11+58.82 |
| DGC-2                                    | 11+97.73 |
| DGC-3                                    | 12+31.85 |
| DGC-4                                    | 12+63.91 |
| DGC-5                                    | 13+03.06 |



September 22, 2025 - 3:25 PM - MIKEM - C:\PW\_OSBORN\_WORKING\DWG\421-0024-PL.DWG - Layout Name: 7 STREAM CHANNEL PLAN

| DATE | NO. | REVISION | BY |
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|                         |                         |
|-------------------------|-------------------------|
| UPI NO.:<br>21-0024     | FED. AID PROJ. NO.:     |
| SURVEY NO.:             | FIELD BOOK(S):          |
| HORIZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF/MP  | DRAWN BY:<br>JAR        |



REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. McCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER  
10/6/2025  
DATE APPROVED:

**SNOHOMISH COUNTY DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES**

FUNDING NO. WC8684

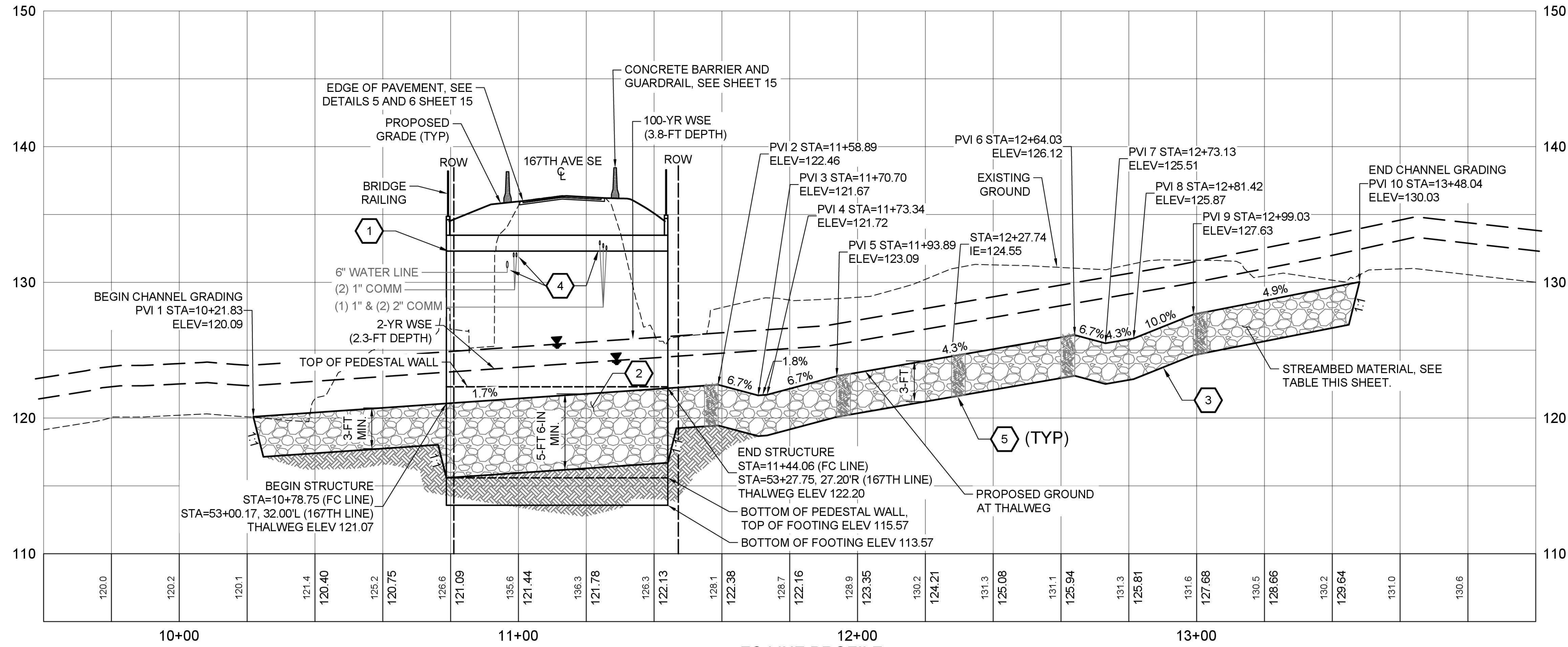
**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE

**STREAM CHANNEL PLAN**

|                             |
|-----------------------------|
| REFERENCE SHEET NO.<br>PL01 |
| SHEET 7 OF 16 SHEETS        |

**GROUP 1**

SECTION 23, T. 28 N, R. 6 E., W.M.



GENERAL NOTES:

1. WORK OUTSIDE RIGHT-OF-WAY COMPLETED UNDER RIGHT OF TEMPORARY CONSTRUCTION EASEMENT. CONSTRUCTION LIMITS AS DEFINED ON SHEET 5 REPRESENT THE EXTENT OF TEMPORARY CONSTRUCTION EASEMENTS.
2. SEE WSDOT STANDARD SPECIFICATION 8-30 "STREAMS, RIVERS, AND WATERBODIES".
3. EXISTING UTILITIES HAVE BEEN POTHOLED AND APPROXIMATE LOCATION SHOWN ON PROFILE. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO THE START OF GRADING ACTIVITIES.
4. PROFILES SHOWN ALONG PROPOSED CREEK THALWEG AND DITCH CENTERLINE.

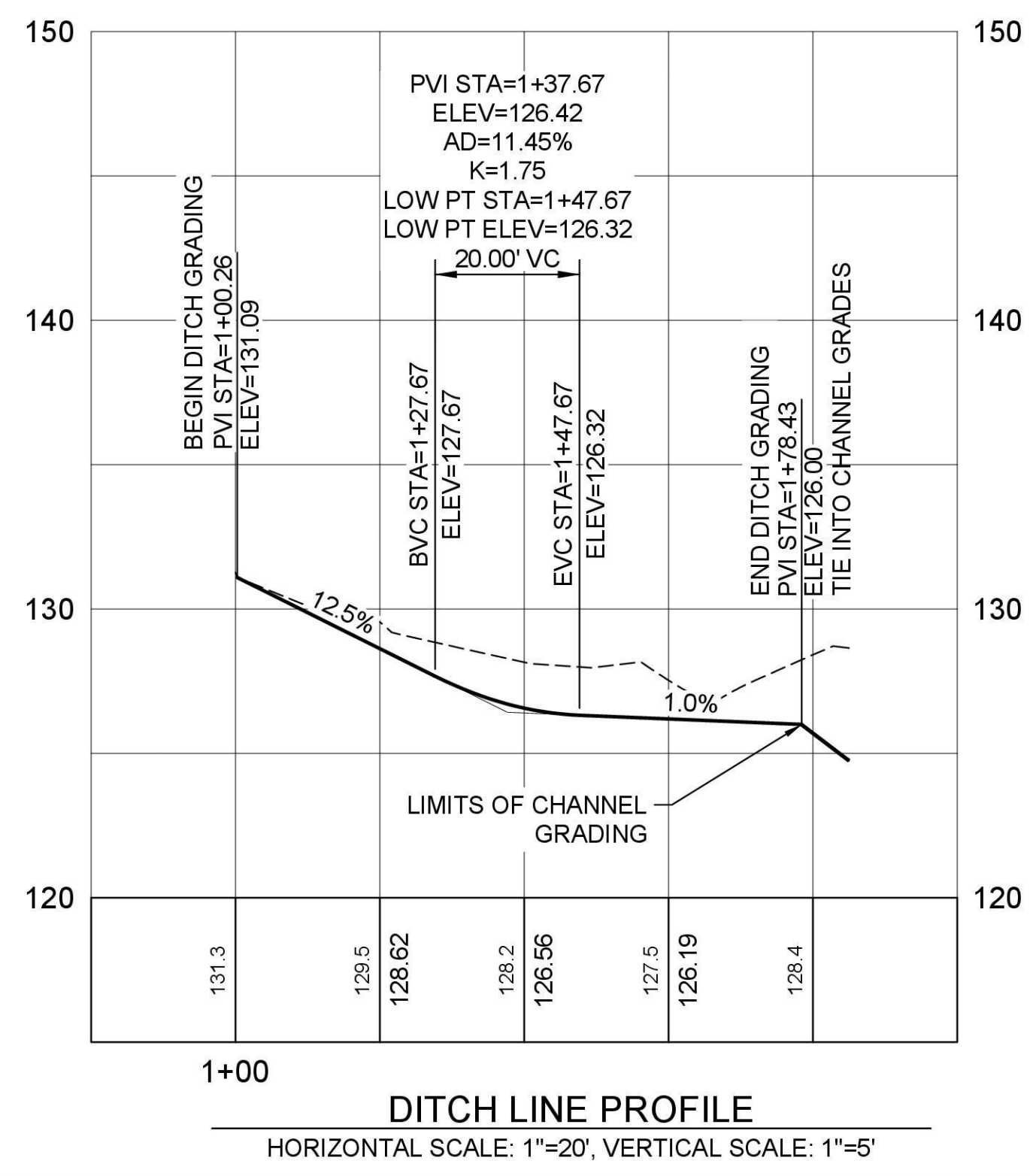
CONSTRUCTION NOTES:

1. INSTALL CONTRACTOR DESIGNED BURIED STRUCTURE NO. (54"W X 10'H X 64'L) AT 75 DEGREE CLOCKWISE SKEW TO ROADWAY CENTER LINE.
2. PLACE STREAMBED MATERIAL IN STRUCTURE PER SECTION A SHEET 9.
3. CHANNEL EXCAVATION LIMITS.
4. UTILITIES TO BE RELOCATED BY UTILITY PROVIDERS. CONTRACTOR SHALL COORDINATE WITH UTILITY PROVIDERS FOR UTILITY RELOCATION AND APPROPRIATE PROTECTION DURING CONSTRUCTION. SEE UTILITY RELOCATION PLANS IN THE APPENDIX INCLUDED IN THE BID PACKAGE. MINIMUM BURIAL DEPTH AND CLEARANCE TO STRUCTURE PER SNOHOMISH COUNTY EDDS SECTION 8-04.
5. CONSTRUCT DEFORMABLE GRADE CONTROL PER DETAIL 1 SHEET 11.

STREAMBED MATERIAL MIX TABLE

| STREAMBED AGGREGATE       | PERCENT BY VOLUME | WSDOT STANDARD SPECIFICATION |
|---------------------------|-------------------|------------------------------|
| STREAMBED SEDIMENT        | 30%               | 9-03.11(1)                   |
| STREAMBED COBBLES 8 IN.   | 65%               | 9-03.11(4)                   |
| STREAMBED BOULDERS TYPE 2 | 5%                | 9-03.11(5)                   |

FC LINE PROFILE  
HORIZONTAL SCALE: 1"=20', VERTICAL SCALE: 1"=5'



DITCH LINE PROFILE  
HORIZONTAL SCALE: 1"=20', VERTICAL SCALE: 1"=5'



GROUP 1

September 22, 2025 - 3:25 PM - MIKEM - C:\PW\_OSBORN\_WORKING\DWG\421-0024-PR.DWG - Layout Name: PR01

| DATE | NO. | REVISION | BY |
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|----------------------|----------------------|
| UPI NO.: 21-0024     | FED. AID PROJ. NO.:  |
| SURVEY NO.:          | FIELD BOOK(S):       |
| HORIZ. DATUM: NAD 83 | VERT. DATUM: NAVD 88 |
| DESIGNED BY: PWF     | DRAWN BY: JAR        |



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*Douglas W. McCormick*  
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10/6/2025  
DATE APPROVED:

SNOHOMISH COUNTY  
DEPARTMENT OF  
CONSERVATION AND  
NATURAL RESOURCES

FUNDING NO. WC8684

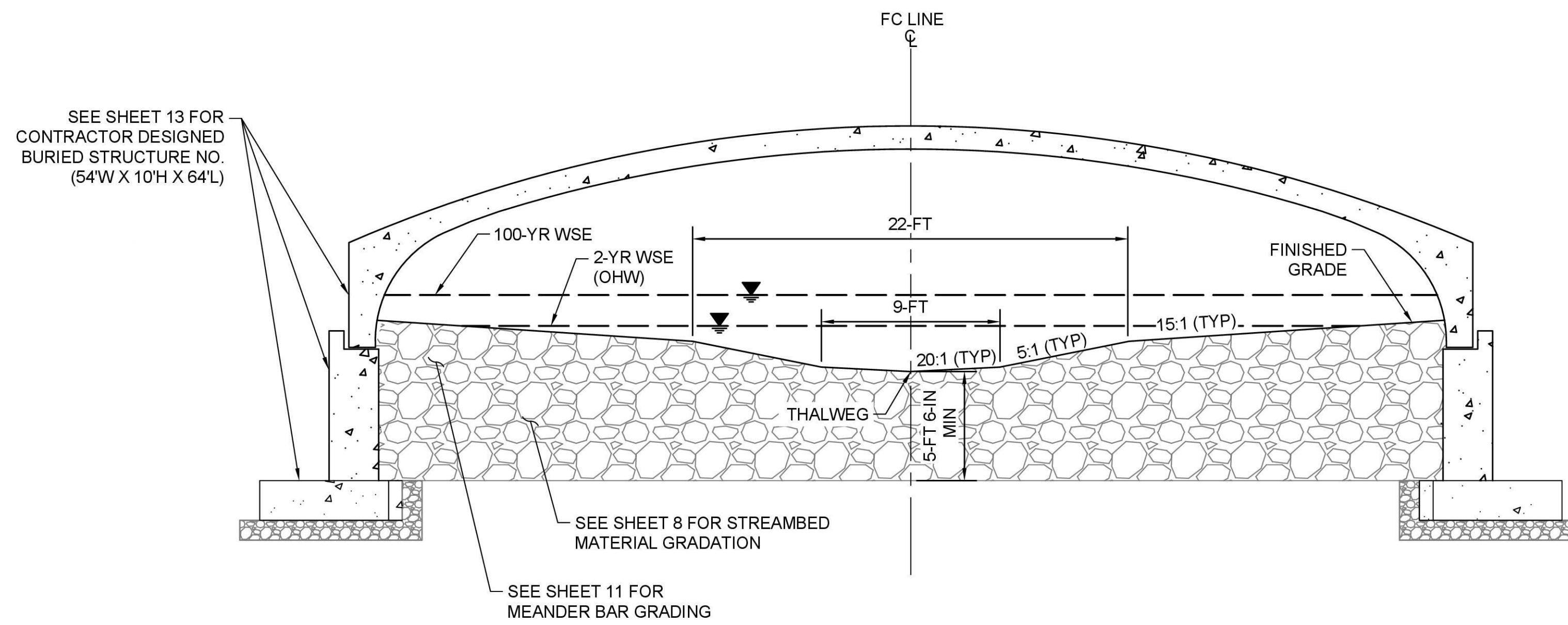
CULVERT REPLACEMENT  
NEAR 10101 167TH AVE SE

STREAM CHANNEL PROFILE

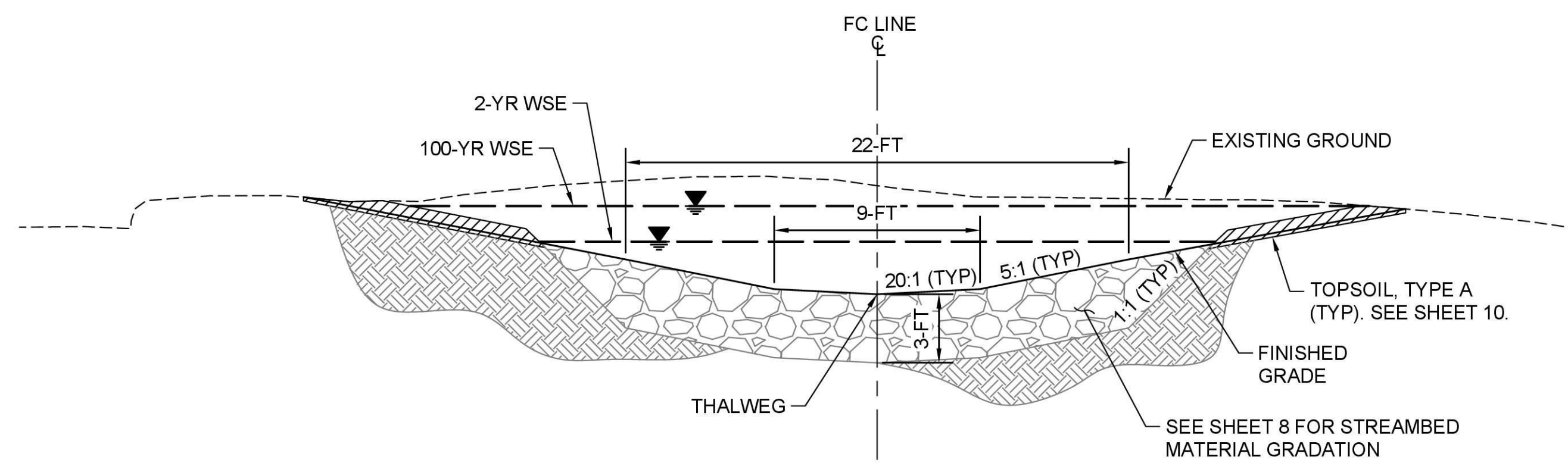
|                          |
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| REFERENCE SHEET NO. PR01 |
| SHEET 8 OF 16 SHEETS     |

**GENERAL NOTES:**

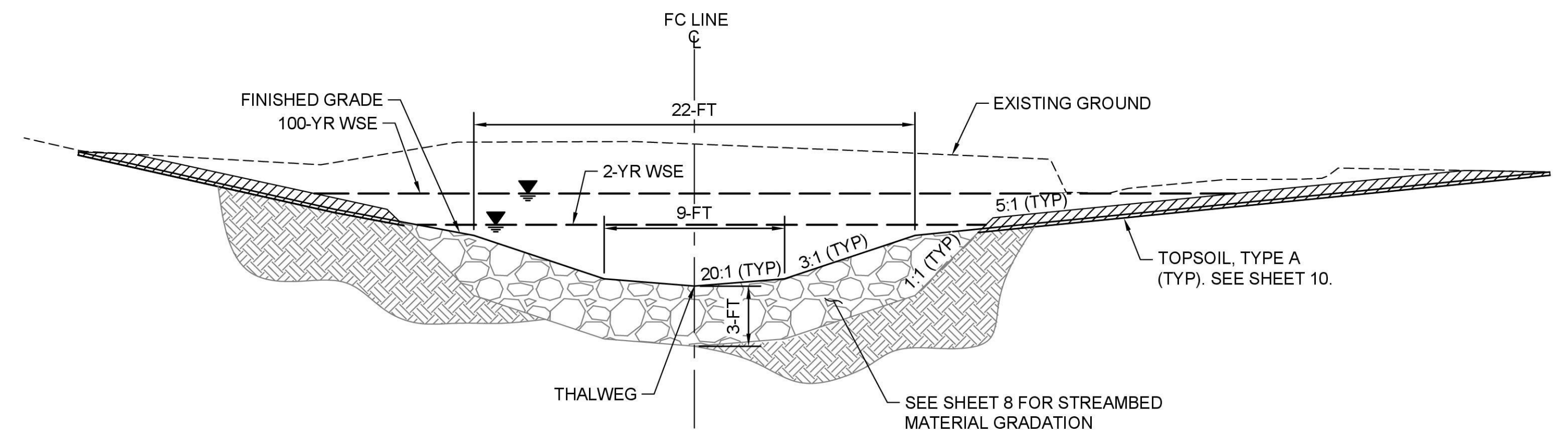
1. WORK OUTSIDE RIGHT-OF-WAY COMPLETED UNDER RIGHT OF TEMPORARY CONSTRUCTION EASEMENT. CONSTRUCTION LIMITS AS DEFINED ON SHEET 5 REPRESENT THE EXTENT OF TEMPORARY CONSTRUCTION EASEMENTS.
2. SEE WSDOT STANDARD SPECIFICATION 8-30 "STREAMS, RIVERS, AND WATERBODIES".
3. CROSS SECTIONS ARE DRAWN LOOKING DOWNSTREAM.



**A**  
7  
**TYPICAL STRUCTURE SECTION**  
N.T.S.  
FC (STA. 10+78.75 TO STA. 11+44.06)



**B**  
7  
**TYPICAL CHANNEL SECTION**  
N.T.S.  
FC (STA. 10+21.83 TO STA. 10+78.75;  
STA. 11+44.06 TO STA. 11+58.89  
STA. 11+93.89 TO STA. 12+64.03  
STA. 12+99.03 TO STA. 13+48.04)



**C**  
7  
**TYPICAL POOL SECTION**  
N.T.S.  
FC (STA. 11+58.89 TO STA. 11+93.89;  
STA. 12+64.03 TO STA. 12+99.03)

September 22, 2025 - 3:25 PM - MIKEM - C:\PW\_OSORN\_WORKING\DWG\421-0024-XS.DWG - Layout Name: SECTIONS

**GROUP 1**

| DATE | NO. | REVISION | BY |
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|      |     |          |    |



|                         |                         |
|-------------------------|-------------------------|
| UPI NO.:<br>21-0024     | FED. AID PROJ. NO.:     |
| SURVEY NO.:             | FIELD BOOK(S):          |
| HORIZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF/MP  | DRAWN BY:<br>JAR        |



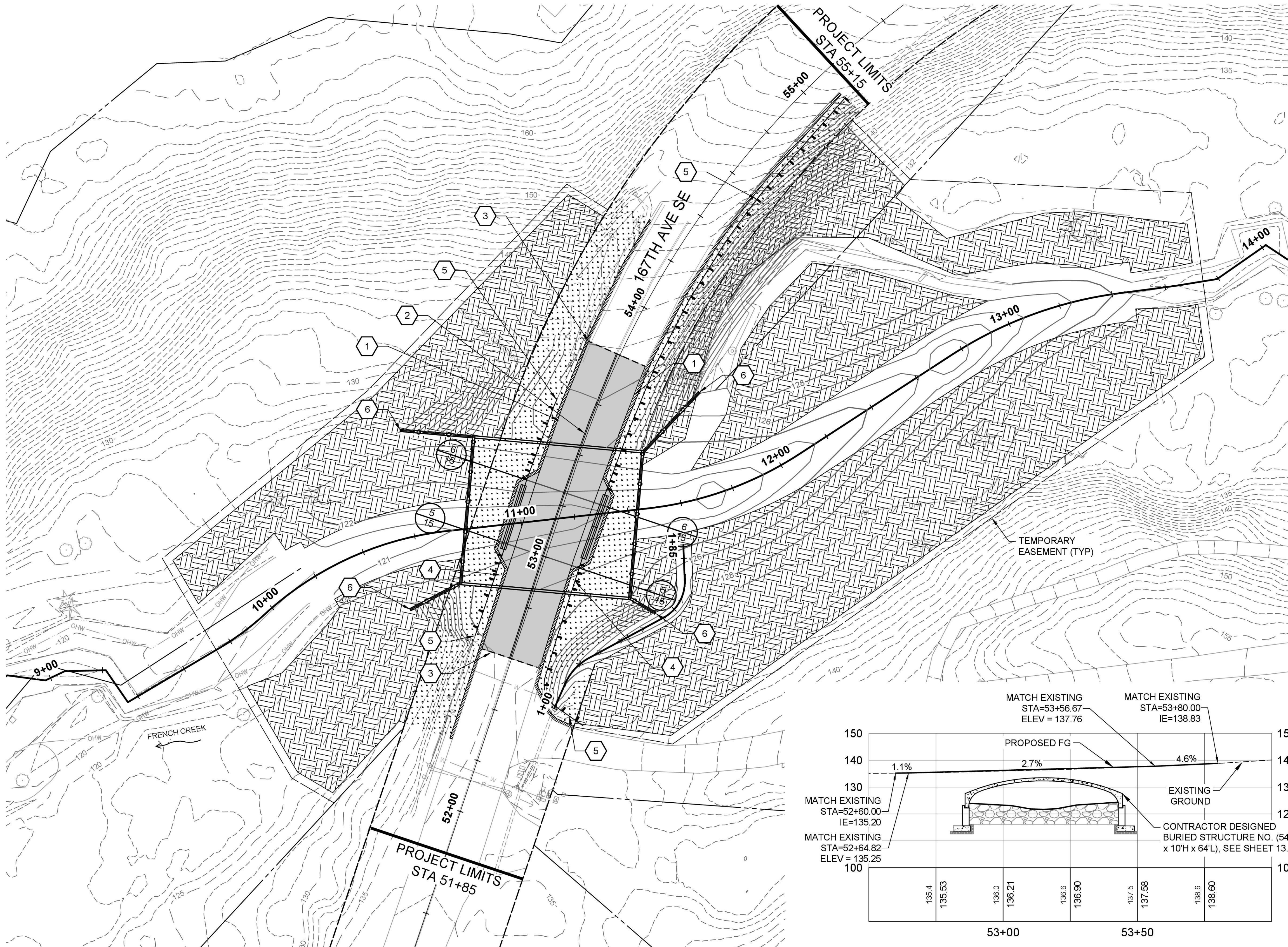
REVIEWED AND APPROVED FOR CONSTRUCTION  
*Douglas W. McCormick*  
DOUGLAS W. McCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER  
10/6/2025  
DATE APPROVED:

**SNOHOMISH COUNTY DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES**  
FUNDING NO. WC8684

**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE  
**STREAM CHANNEL SECTIONS**

|                             |
|-----------------------------|
| REFERENCE SHEET NO.<br>XS01 |
| SHEET 9 OF 16 SHEETS        |

SECTION 23, T. 28 N, R. 6 E., W.M.



GENERAL NOTES:

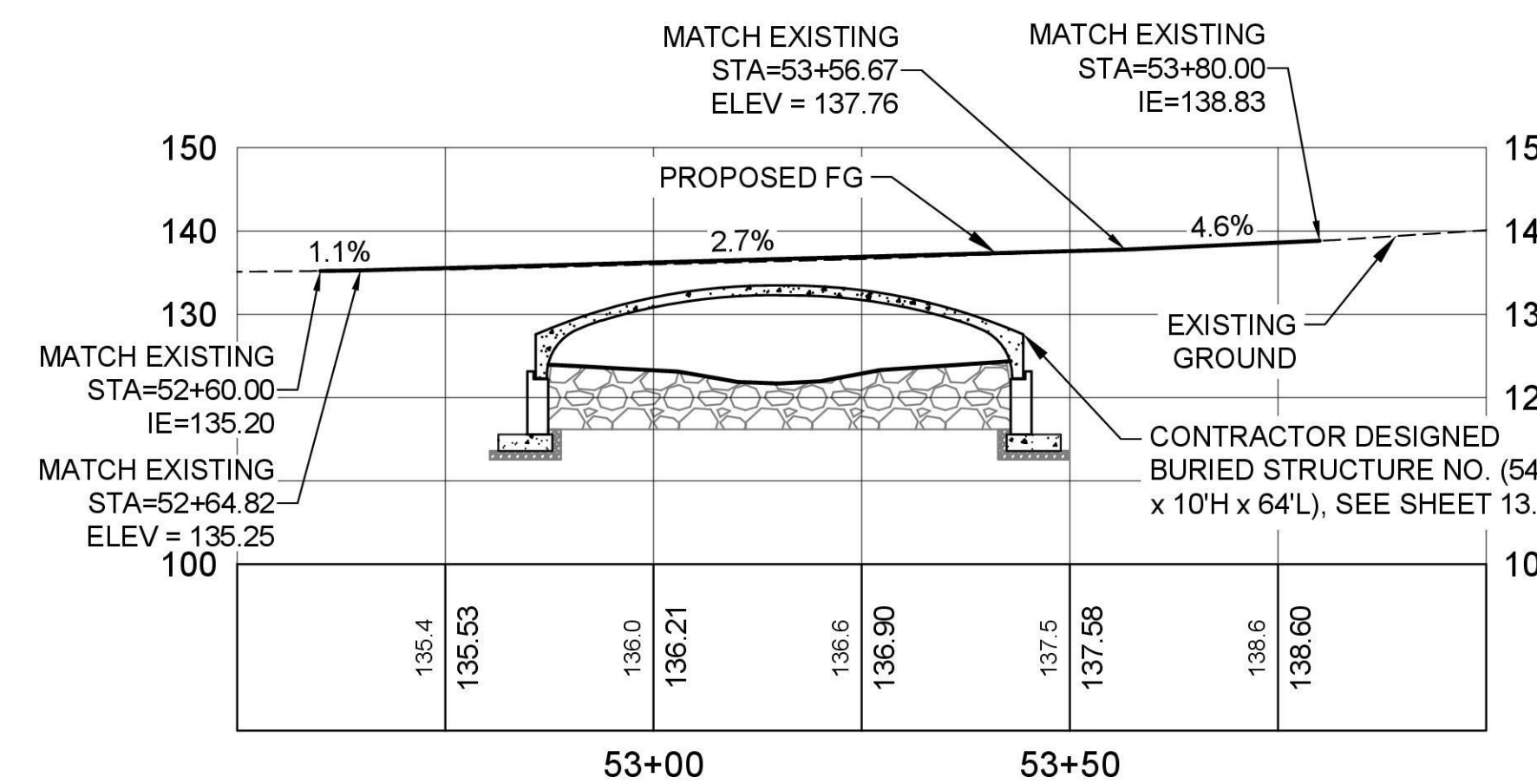
1. ALL EXISTING TREES TO REMAIN UNLESS MARKED FOR REMOVAL ON SHEET 5.
2. REMOVE ALL NOXIOUS WEEDS AND ALL NON-NATIVE PLANTS FROM PLANTING ZONES.
3. ALL DISTURBED AREAS MUST BE RESTORED BY THE CONTRACTOR.
4. FOR ROADWAY, GUARDRAIL, AND CONCRETE BARRIER TYPICAL SECTIONS, SEE SHEET 15.

LEGEND:

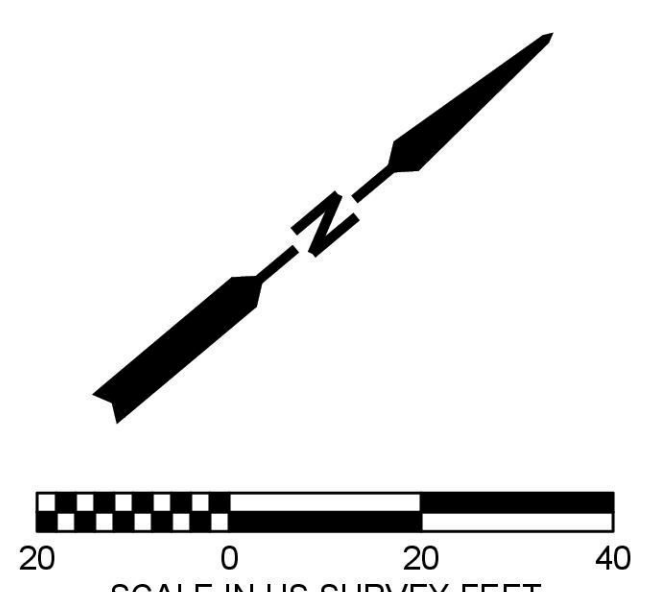
- RIPARIAN / UPLAND RESTORATION AREA - APPLY 8-IN OF TOPSOIL TYPE A AND 4-IN OF WOOD STRAND MULCH OVER THE AREA SHOWN ON THE PLAN. PLANTING TO BE PERFORMED BY SNOHOMISH COUNTY AND NOT INCLUDED IN THIS CONTRACT.
- HYDROSEED AREA - APPLY 8-IN OF TOPSOIL TYPE A OVER THE AREA SHOWN ON THE PLAN PRIOR TO HYDROSEEDING
- PAVEMENT RESTORATION PER DETAIL 5 SHEET 14
- CSBC SHOULDER AREA (6-IN DEPTH AND 1-FT WIDTH)
- SAWCUT LINE
- PAINT LINES
- GUARDRAIL
- BRIDGE RAILING
- CONCRETE BARRIER

## CONSTRUCTION NOTES:

1. WHITE EDGE LINE PER WSDOT STANDARD PLAN M-20.10-04.
2. YELLOW CENTERLINE TO MATCH EXISTING DOUBLE CENTERLINE & DOUBLE LANE LINE PER WSDOT STANDARD PLAN M-20.10-04 WITH RAISED PAVEMENT MARKERS.
3. SAWCUT EXISTING PAVEMENT.
4. UNDERGROUND COMMUNICATION AND WATER LINES TO BE RELOCATED (BY OTHERS). SEE UTILITY RELOCATION PLANS IN THE APPENDIX INCLUDED IN THE BID PACKAGE.
5. SEE GUARDRAIL CONSTRUCTION TABLE ON SHEET 11 FOR GUARDRAIL AND CONCRETE BARRIER RELATED CONSTRUCTION INFORMATION.
6. BRIDGE RAILING TYPE CHAIN LINK PIPE RAIL PER WSDOT STANDARD PLAN L-5.10-02.



167TH AVE SE - ROAD PROFILE  
HORIZONTAL SCALE: 1"=20', VERTICAL SCALE: 1"=20'



September 22, 2025 - 3:26 PM - MIKEM - C:\PW\_OSBOORN\_WORKING\DWG\33674121-0024-RP-DWG - Layout Name: 10 RESTORATION PLAN

| DATE | NO. | REVISION | BY |
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|------------------------|-------------------------|
| UPI NO.:<br>21-0024    | FED. AID PROJ. NO.:     |
| SURVEY NO.:            | FIELD BOOK(S):          |
| HORZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF/MP | DRAWN BY:<br>JAR        |



REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. McCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER

10/6/2025  
DATE APPROVED:

SNOHOMISH COUNTY  
DEPARTMENT OF  
CONSERVATION AND  
NATURAL RESOURCES

FUNDING NO. WC8684

**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE

**RESTORATION PLAN**

|                                   |
|-----------------------------------|
| REFERENCE SHEET NO.<br>RP01       |
| SHEET<br>10<br>OF<br>16<br>SHEETS |

| GUARDRAIL CONSTRUCTION TABLE |                          |                        |  |                                   |   |
|------------------------------|--------------------------|------------------------|--|-----------------------------------|---|
| ALIGNMENT                    | START STATION AND OFFSET | END STATION AND OFFSET | GUARDRAIL TYPE   | WSDOT STANDARD PLAN(S)            | NOTES   |
| 167TH                        | 52+45 33' RT             | 52+48 21' RT           | BEAM GUARDRAIL TYPE 31 ~ ANCHOR TYPE 11                        | C-23.70-01                        | (1) 8-FOOT POST<br>(1) 11-FOOT POST NEAR CULVERT  |
| 167TH                        | 52+48 21' RT             | 52+57 14' RT           | BEAM GUARDRAIL TYPE 31   | C-20.42-06 (OCT.12, 2023 VERSION) | 11-FOOT POSTS<br>10.0' RAIL RADIUS  |
| 167TH                        | 52+57 12' RT             | 52+83 13' RT           | BEAM GUARDRAIL TYPE 31   | C-20.10-09                        | (1) 11-FOOT POST NEAR RADIUS 8-FOOT POSTS   |
| 167TH                        | 52+83 13' RT             | 53+04 13' RT           | BEAM GUARDRAIL TRANSITION SECTION TYPE 24 W/ TYPE D CONNECTION | C-25.30-01<br>C-24.10-05          | 6-FOOT POSTS  |
| 167TH                        | 53+04 12.5' RT           | 53+29 12.9' RT         | CONCRETE BARRIER TYPE F (ANCHORED)                             | C-60.10-04                        |   |
| 167TH                        | 53+28 13.5' RT           | 53+51 14' RT           | BEAM GUARDRAIL TRANSITION SECTION TYPE 24 W/ TYPE D CONNECTION | C-25.30-01<br>C-24.10-05          | 6-FOOT POSTS  |
| 167TH                        | 53+51 14' RT             | 54+61 13' RT           | BEAM GUARDRAIL TYPE 31   | C-20.10-09                        | 8-FOOT POSTS  |
| 167TH                        | 54+61 13' RT             | 55+10 12' RT           | TYPE 31 NON-FLARED TERMINAL                                    | C-22.40-11                        | 8-FOOT POSTS  |
| 167TH                        | 52+64 16' LT             | 52+76 16' LT           | BEAM GUARDRAIL TYPE 31   | C-20.10-09                        | 6-FOOT POSTS TO FIELD LOCATE GUARDRAIL BEAM SPLICES SOUTH OF THIS STATION AND START REPLACEMENT LIMITS AT THE EXISTING SPLICE JOINT |
| 167TH                        | 52+76 16' LT             | 52+98 16' RT           | BEAM GUARDRAIL TRANSITION SECTION TYPE 24 W/ TYPE D CONNECTION | C-25.30-01<br>C-24.10-05          | 6-FOOT POSTS  |
| 167TH                        | 52+98 15' LT             | 53+23 15' LT           | CONCRETE BARRIER TYPE F (ANCHORED)                             | C-60.10-04                        |   |
| 167TH                        | 53+22 16' LT             | 53+44 15' RT           | BEAM GUARDRAIL TRANSITION SECTION TYPE 24 W/ TYPE D CONNECTION | C-25.30-01<br>C-24.10-05          | 6-FOOT POSTS  |
| 167TH                        | 53+44 15' LT             | 53+56 15' LT           | BEAM GUARDRAIL TYPE 31   | C-20.10-09                        | 6-FOOT POSTS TO FIELD LOCATE GUARDRAIL BEAM SPLICES NORTH OF THIS STATION AND START REPLACEMENT LIMITS AT THE EXISTING SPLICE JOINT |

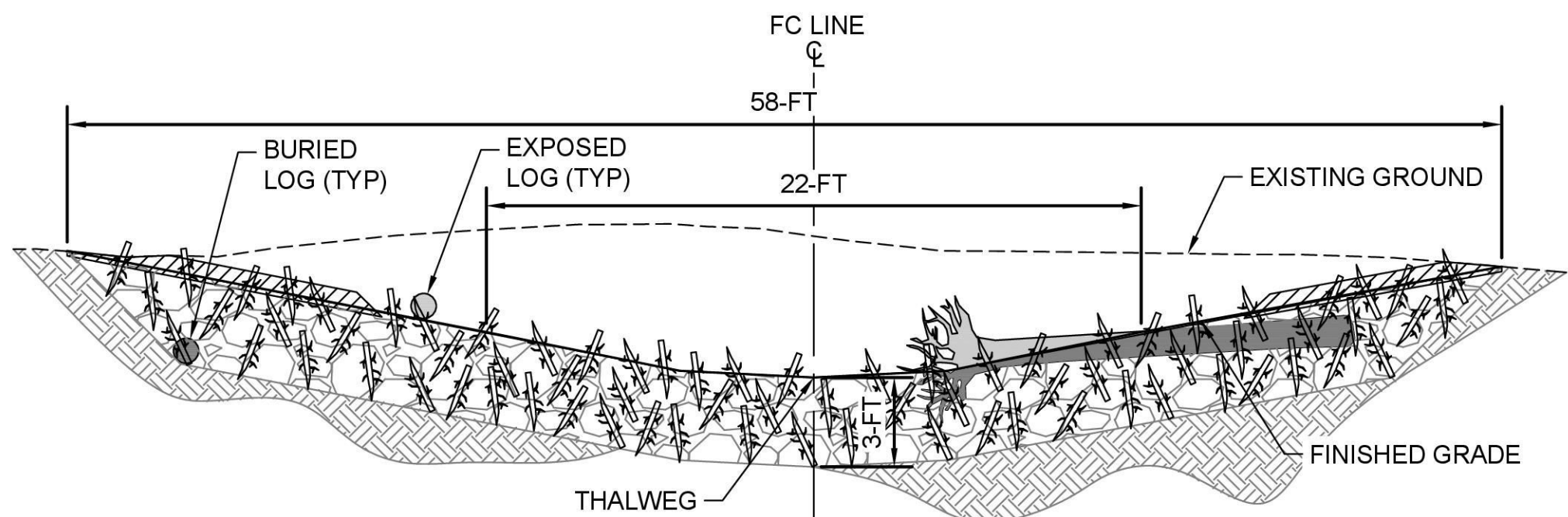
**MEANDER BAR NOTES:**

- SEE WSDOT STANDARD SPECIFICATION 8-30 "STREAMS, RIVERS, AND WATERBODIES".
- INCORPORATE SLASH INTO THE MEANDER BAR HEAD.
- SLASH SHOULD BE SLIGHTLY EXPOSED 6-INCHES ABOVE FINISHED GRADE. SEE SPECIAL PROVISION "WOODY MATERIAL".
- STREAMBED MATERIAL MIX SHALL BE LAYERED OVER SLASH TO MAINTAIN A COHESIVE MATRIX. SLASH SHALL RANGE IN SIZE AND MAKE UP APPROXIMATELY 30% OF THE MEANDER BAR HEAD VOLUME.
- ALIGNMENT OF LOW FLOW CHANNEL TO BE DIRECTED BY THE ENGINEER IN THE FIELD.
- FILL VOIDS IN MEANDER BAR HEAD MATERIAL WITH STREAMBED SEDIMENT AND STREAMBED SAND.

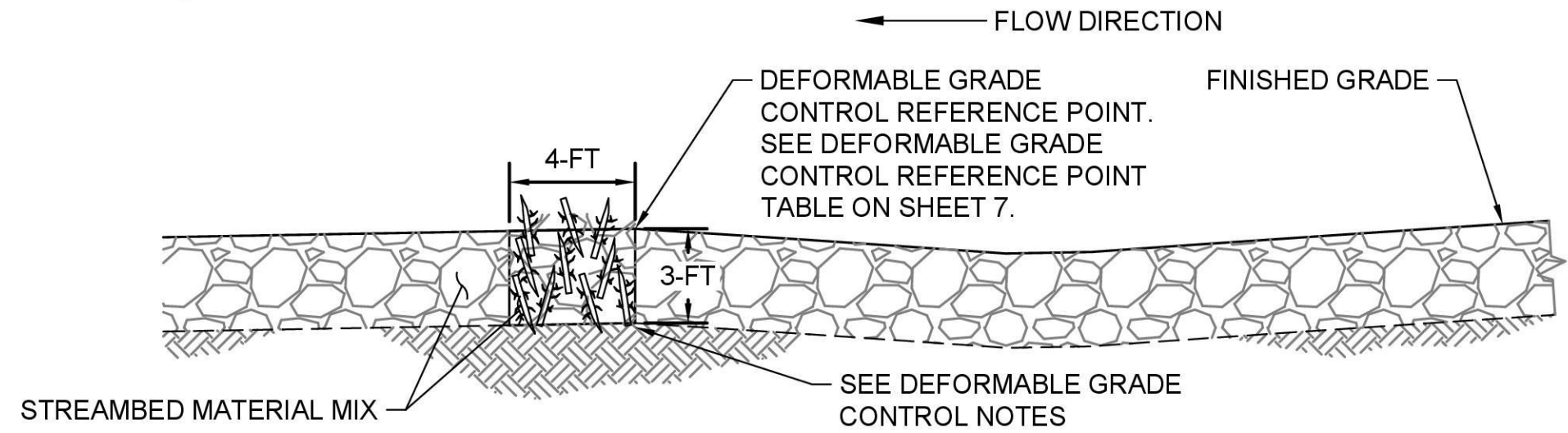
| MEANDER BAR HEAD MATERIAL |                   |                              |
|---------------------------|-------------------|------------------------------|
| STREAMBED AGGREGATE       | PERCENT BY VOLUME | WSDOT STANDARD SPECIFICATION |
| STREAMBED BOULDERS TYPE 2 | 100%              | 9-03.11(5)                   |

**DEFORMABLE GRADE CONTROL NOTES:**

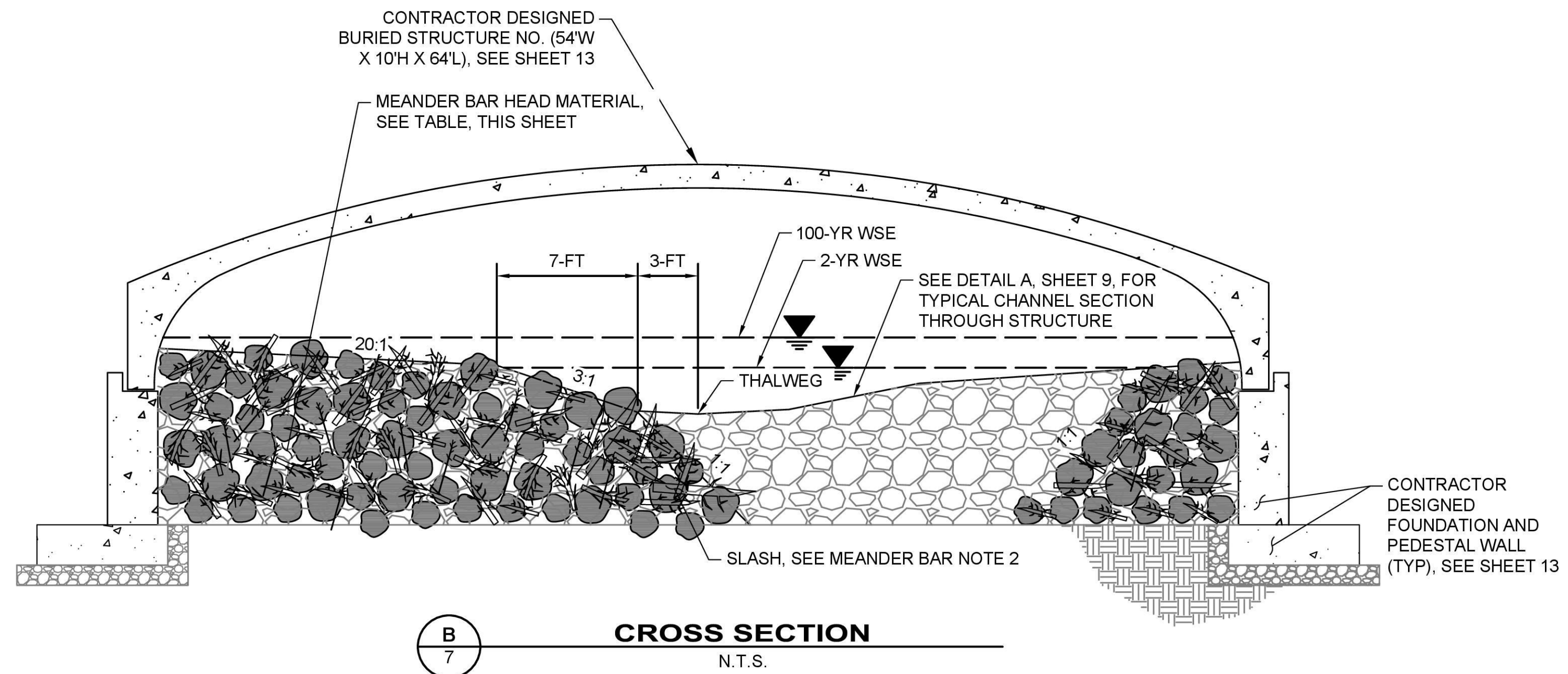
- SEE WSDOT STANDARD SPECIFICATION 8-30 "STREAMS, RIVERS, AND WATERBODIES".
- SLASH SHOULD BE EXPOSED 6 INCHES ABOVE FINISHED GRADE. SEE SPECIAL PROVISION "WOODY MATERIAL".
- SLASH TO EXTEND UP TO 6 INCHES ABOVE EACH LIFT OF STREAMBED MATERIAL. STREAMBED MATERIAL SHALL BE LAYERED OVER SLASH TO MAINTAIN A COHESIVE MATRIX IN THE TRENCH. SLASH SHALL RANGE IN SIZE AND MAKE UP APPROXIMATELY 50% OF THE TRENCH VOLUME.
- DEFORMABLE GRADE CONTROL SHALL BE PLACED PERPENDICULAR TO THE STREAM CHANNEL ALIGNMENT.



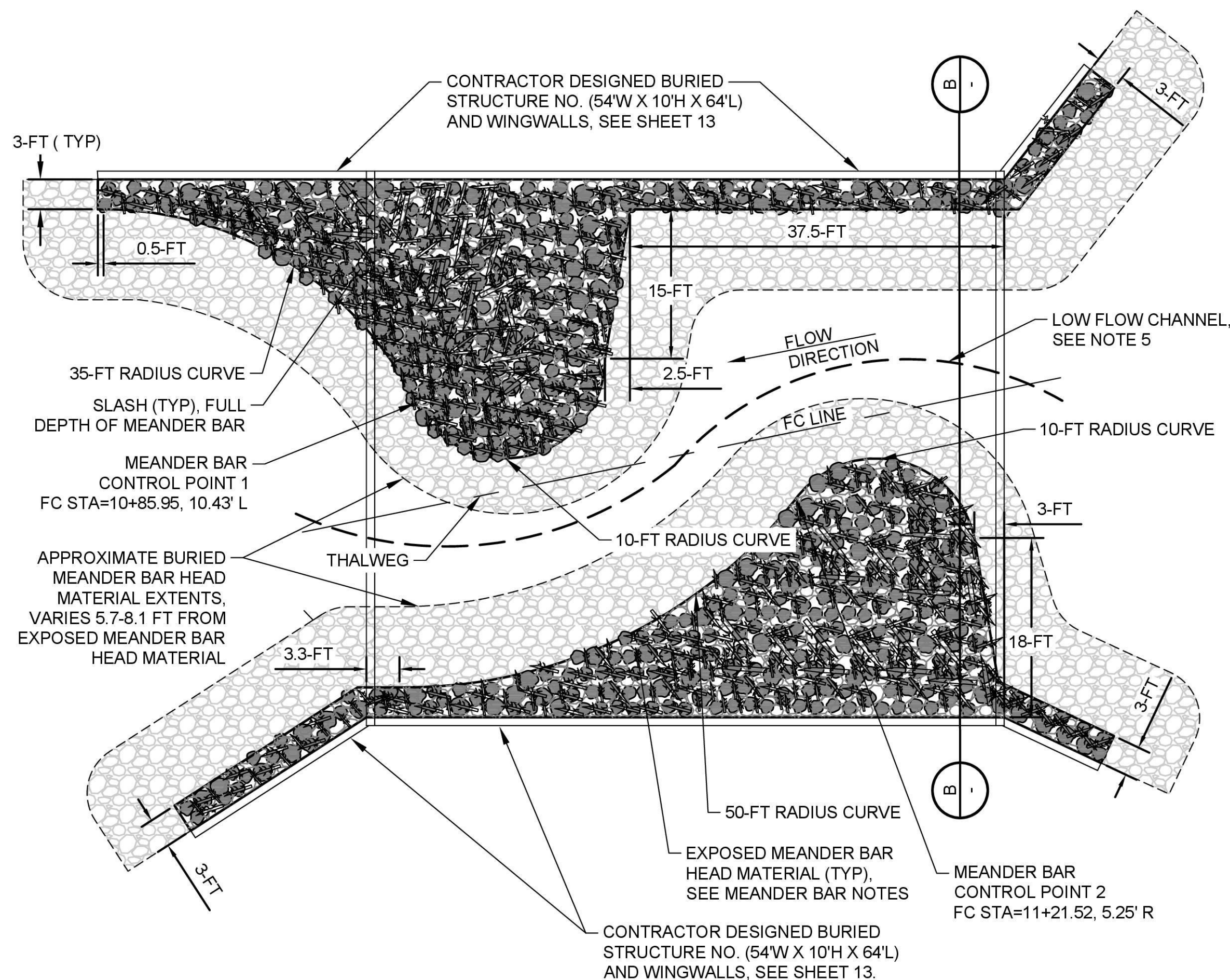
**DEFORMABLE GRADE CONTROL CROSS SECTION**  
N.T.S.



**TYPICAL DEFORMABLE GRADE CONTROL**  
N.T.S.



**CROSS SECTION**  
N.T.S.



**PLAN MEANDER BAR**  
N.T.S.

**GROUP 1**

| DATE | NO. | REVISION | BY |
|------|-----|----------|----|
|      |     |          |    |
|      |     |          |    |
|      |     |          |    |

**811**  
Know what's below. Call 811 before you dig.

|                        |                         |
|------------------------|-------------------------|
| UPI NO.:<br>21-0024    | FED. AID PROJ. NO.:     |
| SURVEY NO.:            | FIELD BOOK(S):          |
| HORZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF    | DRAWN BY:<br>JAR        |

Osborn Consulting

REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. MCCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER

10/6/2025  
DATE APPROVED:

**SNOHOMISH COUNTY DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES**

FUNDING NO. WC8684

**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE

**DETAILS - 1**

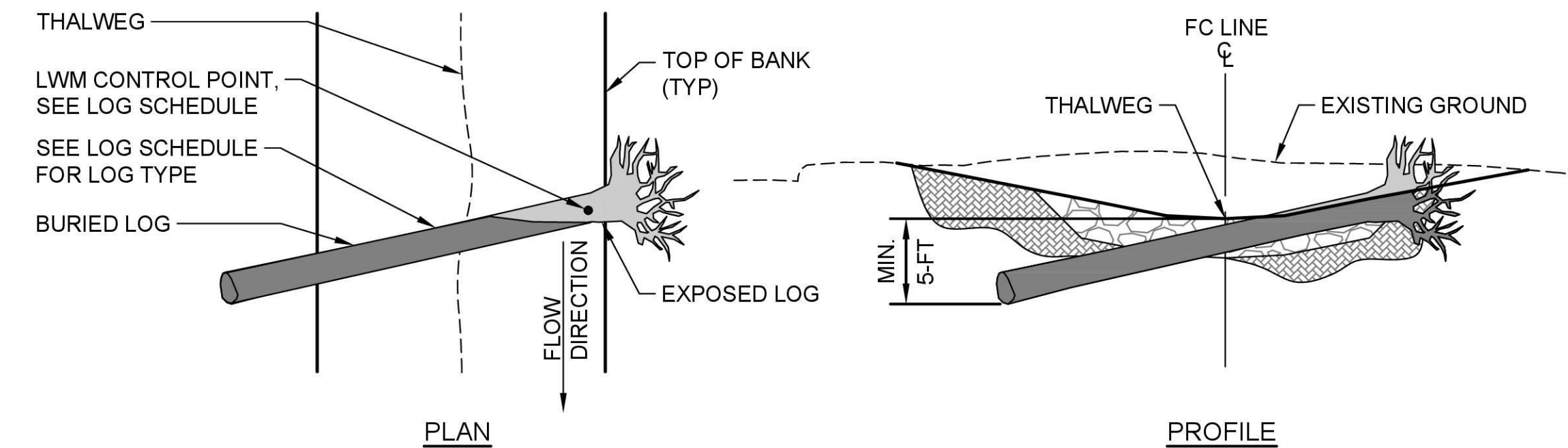
|                                   |
|-----------------------------------|
| REFERENCE SHEET NO.<br>DT01       |
| SHEET<br>11<br>OF<br>16<br>SHEETS |

September 22, 2025 - 3:26 PM - MIKEM - C:\PW\OSBORN\_WORKING\DWG\421-0024-DT1.DWG - Layout Name: DETAILS - 1

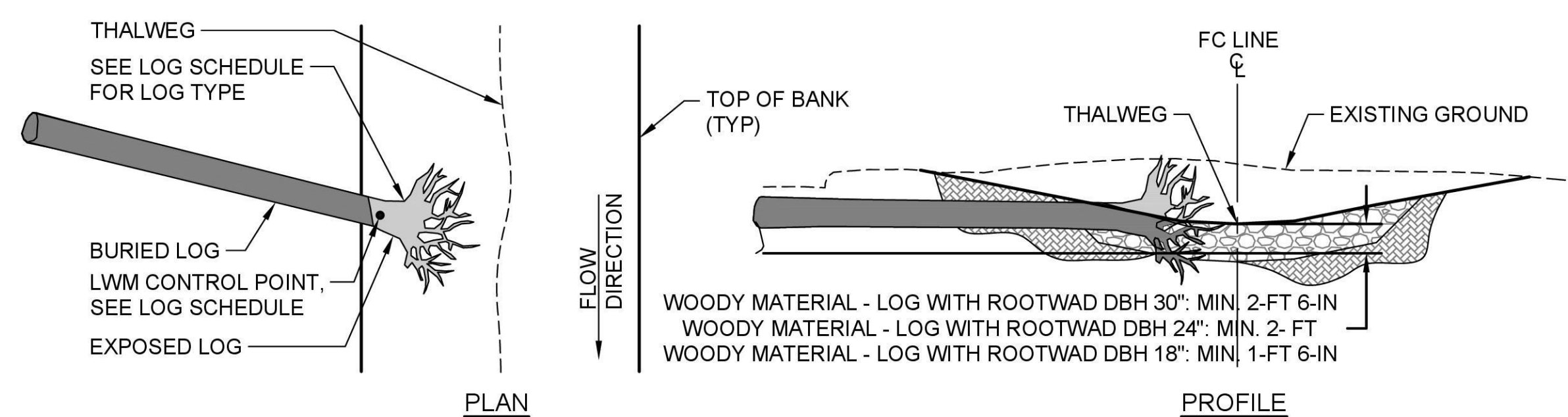
**NOTES:**

- SEE SHEET 7 FOR APPROXIMATE LOG ORIENTATION. LOG LOCATION SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER IN THE FIELD.
- ALL TREES AND LIMBS REMOVED DURING SITE PREPARATION SHALL BE STOCKPILED AND PLACED ON SITE AS SLASH OR WOODY MATERIAL AT ENGINEER'S DISCRETION. SEE SPECIAL PROVISIONS.
- DETAILS ON THIS SHEET APPLY TO LOG INSTALLATION ON EITHER BANK.
- SEE SPECIAL PROVISION "WOODY MATERIAL".

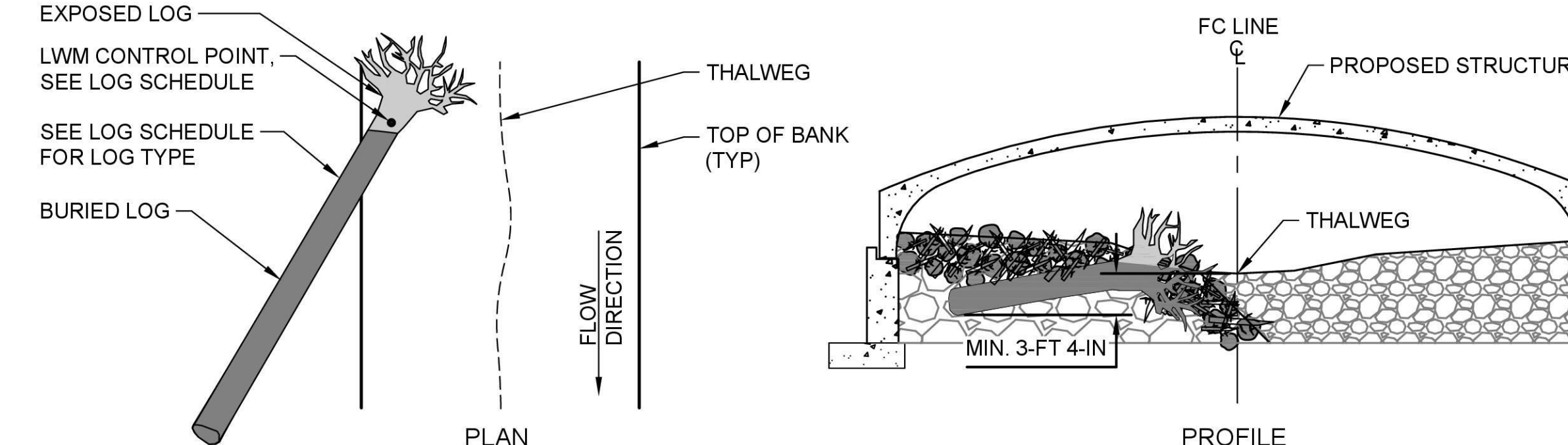
| LOG SCHEDULE (1/2) |            |        |  | LOG SCHEDULE (2/2) |            |        |   |
|--------------------|------------|--------|--|--------------------|------------|--------|---|
| LOG ID             | FC STATION | OFFSET | DESCRIPTION  | LOG ID             | FC STATION | OFFSET | DESCRIPTION   |
| 1                  | 10+23      | 11' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 1    | 33                 | 13+09      | 7' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2 |
| 2                  | 10+32      | 15' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 30"; 30' LENGTH; DETAIL 1    | 34                 | 13+15      | 11' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2 |
| 3                  | 10+35      | 4' R   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2    | 35                 | 13+18      | 15' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2 |
| 4                  | 10+44      | 8' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2    | 36                 | 13+39      | 11' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 1 |
| 5                  | 10+57      | 6' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 30"; 30' LENGTH; DETAIL 2    | 37                 | 13+40      | 9' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2 |
| 6                  | 10+49      | 5' R   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2    | 38                 | 11+75      | 23' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2 |
| 7                  | 10+60      | 5' R   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2    | 39                 | 11+80      | 28' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 8                  | 11+05      | 16' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 30"; 30' LENGTH; DETAIL 3    | 40                 | 11+89      | 33' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 9                  | 11+35      | 14' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 30"; 30' LENGTH; DETAIL 3    | 41                 | 11+97      | 45' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 10                 | 11+52      | 11' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 1    | 42                 | 11+93      | 25' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 11                 | 11+62      | 22' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2    | 43                 | 12+11      | 51' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 12                 | 11+66      | 26' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2    | 44                 | 12+12      | 24' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 13                 | 11+70      | 21' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2    | 45                 | 12+31      | 33' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 14                 | 11+72      | 7' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2    | 46                 | 12+29      | 58' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 15                 | 11+68      | 8' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 30"; 30' LENGTH; DETAIL 2    | 47                 | 12+43      | 62' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 16                 | 11+90      | 14' R  | WOODY MATERIAL - LOG WITHOUT ROOTWAD DBH 30"; 30' LENGTH; DETAIL 1 | 48                 | 12+39      | 46' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 17                 | 11+90      | 21' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4    | 49                 | 12+36      | 56' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 18                 | 11+92      | 11' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 1    | 50                 | 12+49      | 46' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 19                 | 12+06      | 9' R   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 30"; 30' LENGTH; DETAIL 2    | 51                 | 12+65      | 59' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 20                 | 12+09      | 9' R   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2    | 52                 | 12+63      | 50' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 21                 | 12+20      | 6' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 30"; 30' LENGTH; DETAIL 2    | 53                 | 12+64      | 47' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 22                 | 12+30      | 8' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2    | 54                 | 12+73      | 52' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 23                 | 12+51      | 15' R  | WOODY MATERIAL - LOG WITHOUT ROOTWAD DBH 30"; 30' LENGTH; DETAIL 1 | 55                 | 12+75      | 45' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 24                 | 12+55      | 10' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4    | 56                 | 12+83      | 44' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 4 |
| 25                 | 12+63      | 13' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2    | 57                 | 12+76      | 27' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 26                 | 12+62      | 11' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2    | 58                 | 12+85      | 31' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 27                 | 12+89      | 9' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 1    | 59                 | 13+05      | 32' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 28                 | 12+93      | 15' R  | WOODY MATERIAL - LOG WITHOUT ROOTWAD DBH 30"; 30' LENGTH; DETAIL 1 | 60                 | 13+12      | 23' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2 |
| 29                 | 12+95      | 15' R  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4    | 61                 | 13+11      | 32' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 30                 | 12+93      | 8' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 30"; 30' LENGTH; DETAIL 2    | 62                 | 13+17      | 30' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2 |
| 31                 | 12+97      | 9' L   | WOODY MATERIAL - LOG WITH ROOTWAD DBH 24"; 25' LENGTH; DETAIL 2    | 63                 | 13+22      | 27' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 4 |
| 32                 | 12+99      | 12' L  | WOODY MATERIAL - LOG WITH ROOTWAD DBH 18"; 20' LENGTH; DETAIL 2    |                    |            |        |   |



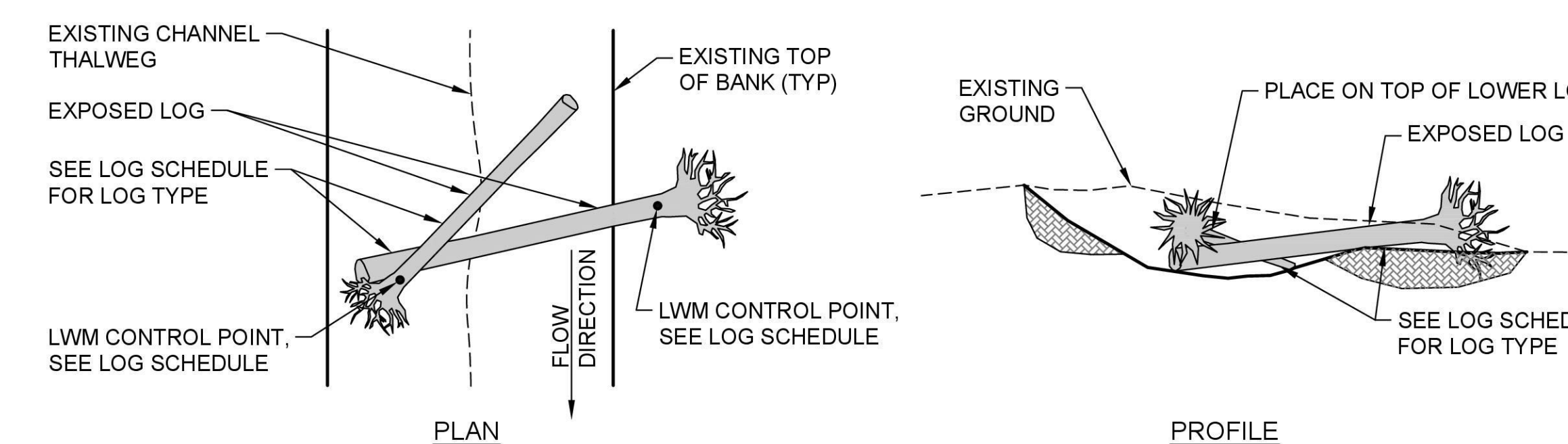
**1** LARGE WOODY MATERIAL DETAIL  
N.T.S.



**2** LARGE WOODY MATERIAL DETAIL  
N.T.S.



**3** LARGE WOODY MATERIAL DETAIL  
N.T.S.



**4** LARGE WOODY MATERIAL DETAIL  
N.T.S.

September 22, 2025 - 3:26 PM - MIKEM - C:\PW\_OSBNR\_WORKING\DWG\421-0024-DT2.DWG - Layout Name: DETAILS - 2

| DATE | NO. | REVISION | BY |
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| UPI NO.:<br>21-0024     | FED. AID PROJ. NO.:     |
| SURVEY NO.:             | FIELD BOOK(S):          |
| HORIZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF     | DRAWN BY:<br>JAR        |



REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. McCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER

10/6/2025  
DATE APPROVED:

**SNOHOMISH COUNTY**  
DEPARTMENT OF  
CONSERVATION AND  
NATURAL RESOURCES

FUNDING NO. WC8684

**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE

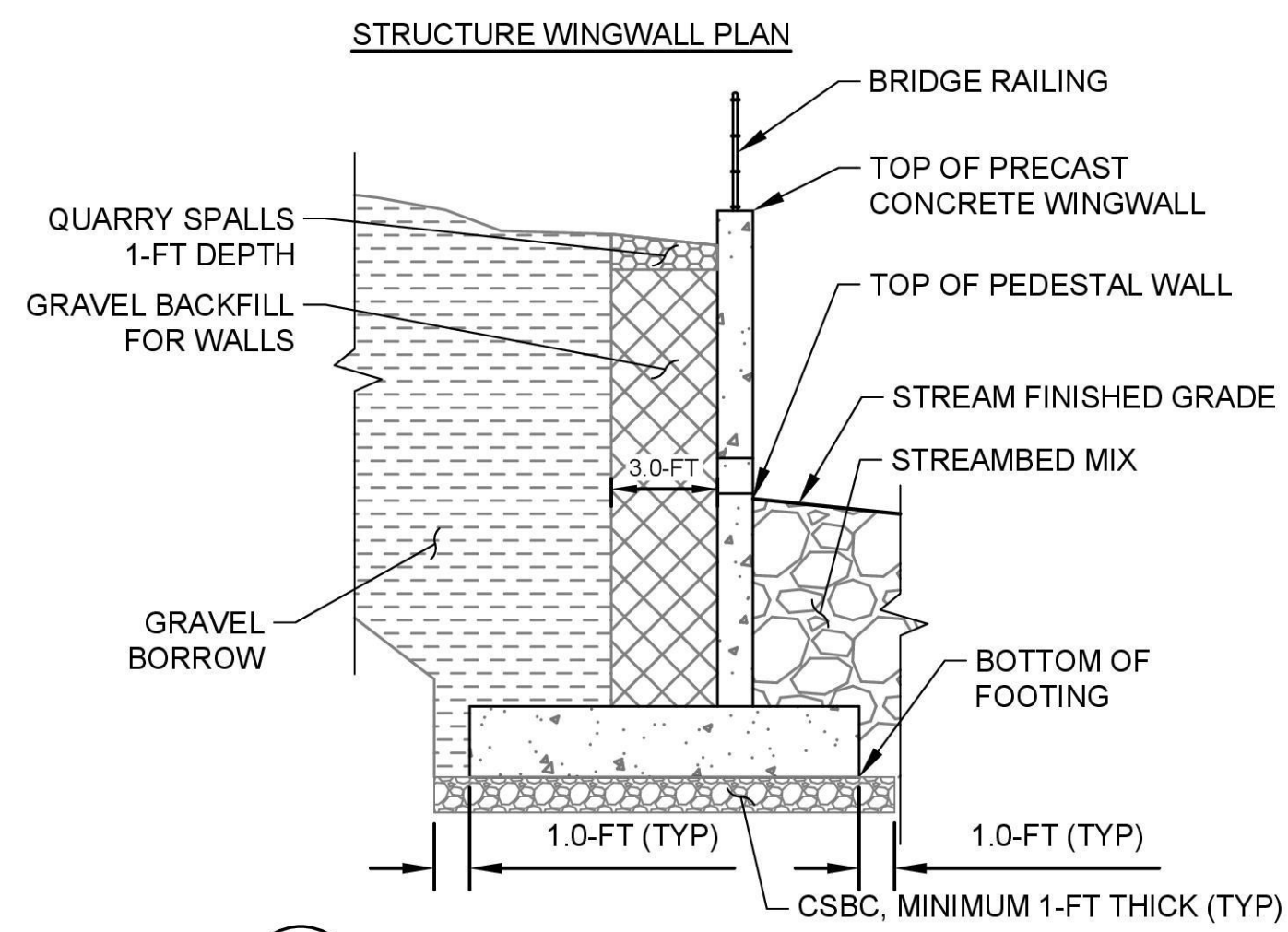
**DETAILS - 2**

|                                   |
|-----------------------------------|
| REFERENCE SHEET NO.<br>DT02       |
| SHEET<br>12<br>OF<br>16<br>SHEETS |

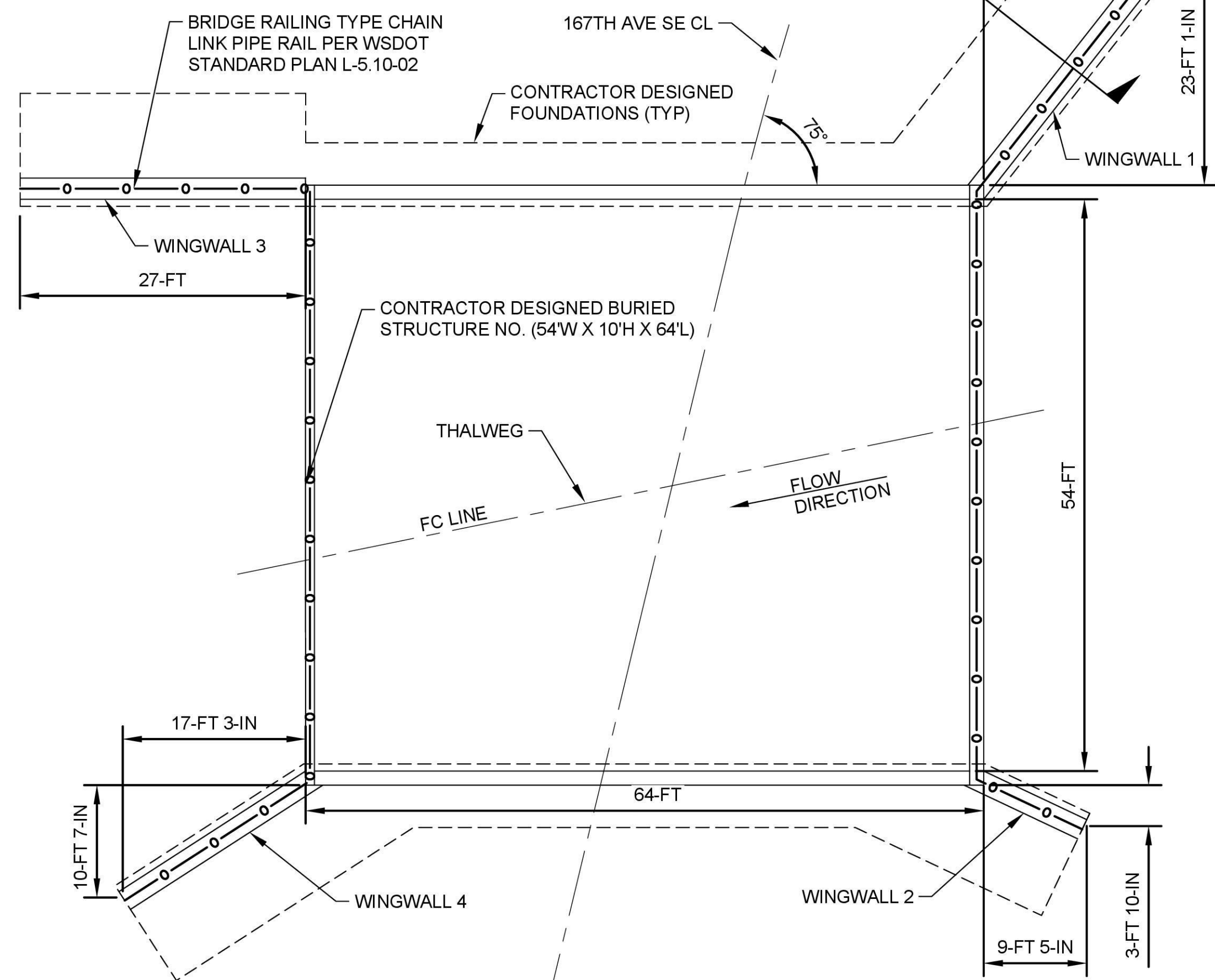
**GROUP 1**

**NOTES:**

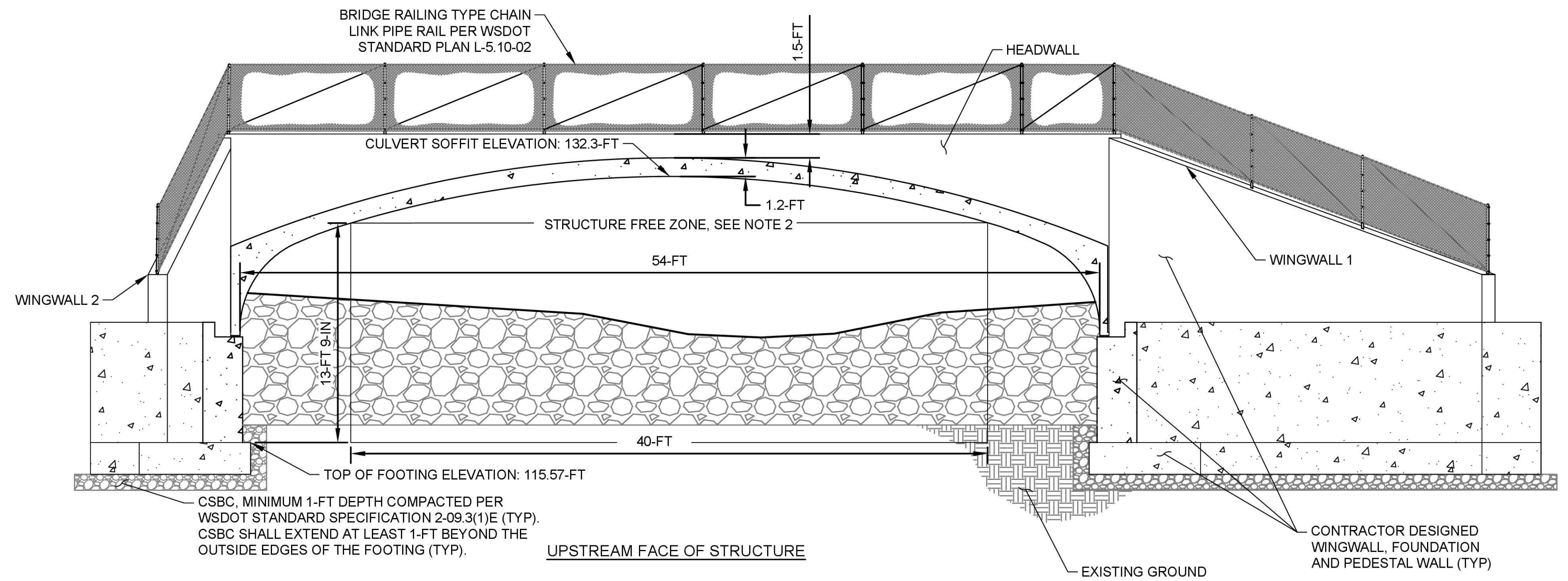
1. HEADWALL AND WINGWALL TO BE PRE-CAST CONCRETE STRUCTURES.
2. NO PART OF THE CONTRACTOR DESIGNED BURIED STRUCTURE NO. (54W X 10H X 64L), SHALL BE LOCATED WITHIN THE STRUCTURE FREE ZONE. TOP OF STRUCTURE FREE ZONE: ELEVATION 129.32 FEET. BOTTOM OF STRUCTURE FREE ZONE: ELEVATION 115.57 FEET. STRUCTURE FREE ZONE IS CENTERED ON STRUCTURE CENTERLINE.
3. CONTRACTOR DESIGNED FOUNDATIONS AND PEDESTAL WALLS MAY BE CAST-IN-PLACE OR PRECAST CONCRETE AT CONTRACTOR'S DISCRETION.
4. SEE GEOTECHNICAL REPORT ATTACHED AS AN APPENDIX IN THE BID PACKAGE.



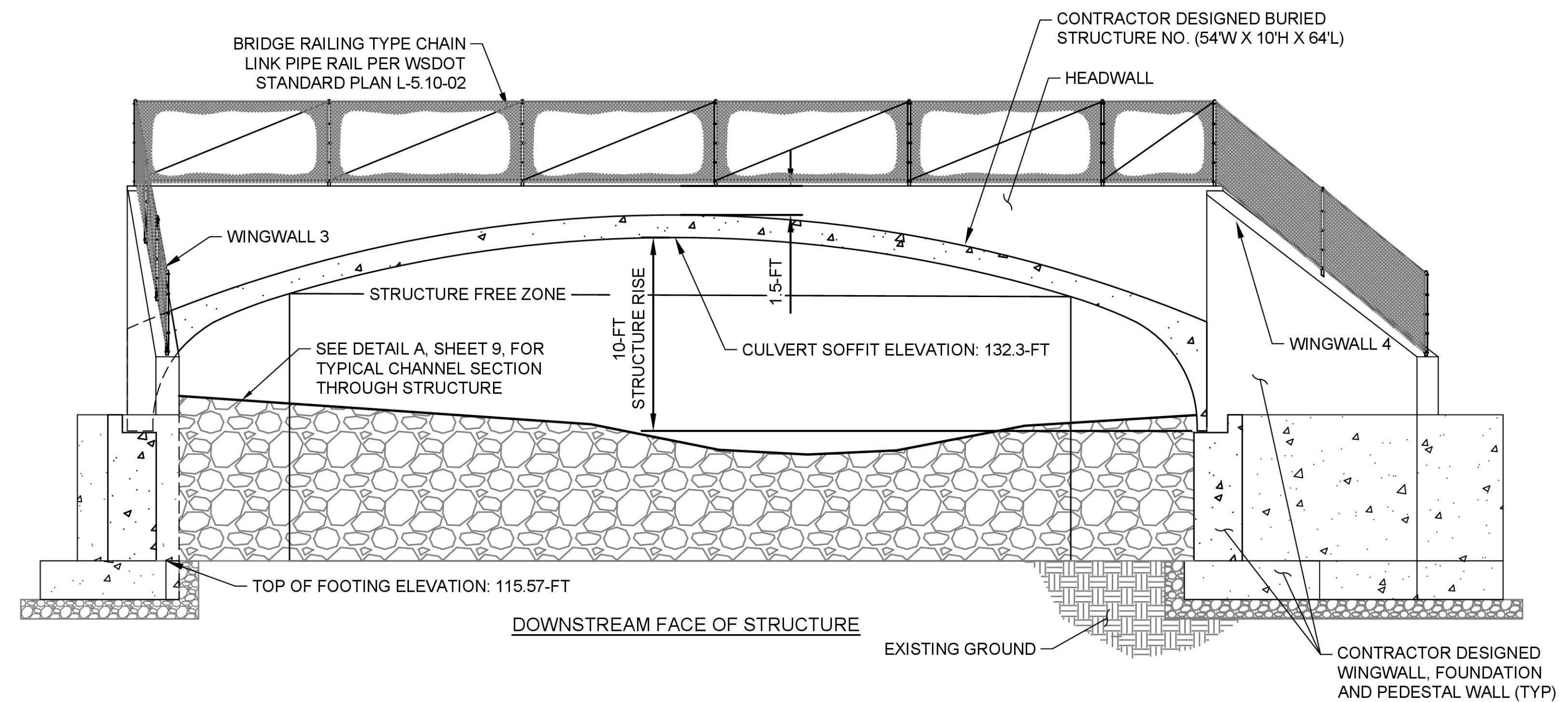
**A**  
13  
**CROSS SECTION**  
N.T.S.



**1**  
6  
**WINGWALL PLAN**  
N.T.S.





**2**  
6  
**HEADWALL AND WINGWALL DETAIL**  
N.T.S.

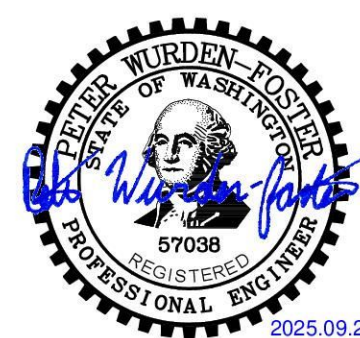


September 22, 2025 - 3:26 PM - MIKEM - C:\PW\_OSBORN\_WORKING\DWG\421-0024-DT3.DWG - Layout Name: DETAILS - 3

| DATE | NO. | REVISION | BY |
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| <br>Know what's below.<br>Call 811 before you dig. | UPI NO.:<br>21-0024    | FED. AID PROJ. NO.:     |
|   | SURVEY NO.:            | FIELD BOOK(S):          |
|   | HORZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
|   | DESIGNED BY:<br>PWF    | DRAWN BY:<br>JAR        |





REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*

DOUGLAS W. MCCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER

10/6/2025  
DATE APPROVED:

**SNOHOMISH COUNTY DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES**

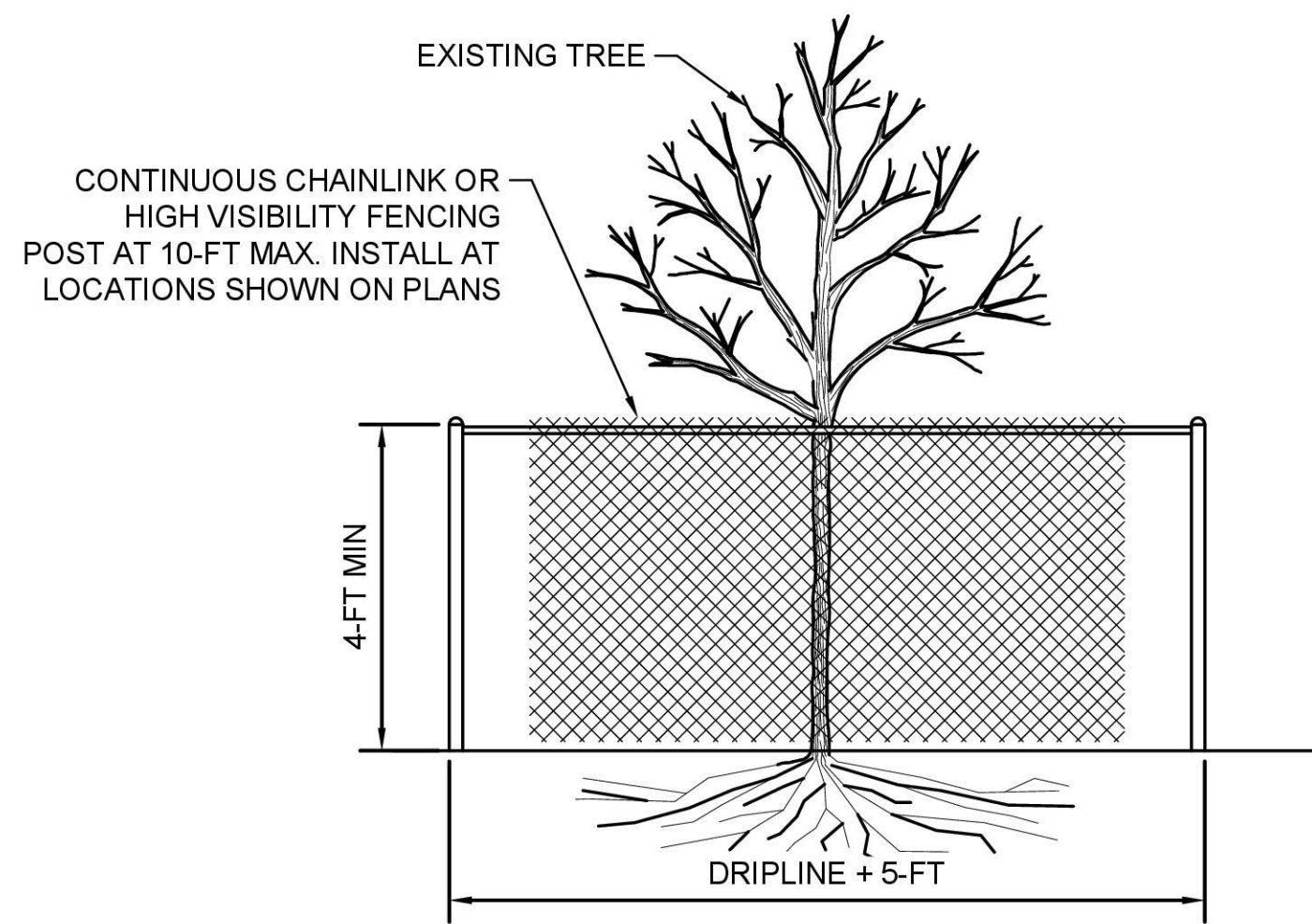
FUNDING NO. WC8684

**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE

**DETAILS - 3**

|                                   |
|-----------------------------------|
| REFERENCE SHEET NO.<br>DT03       |
| SHEET<br>13<br>OF<br>16<br>SHEETS |

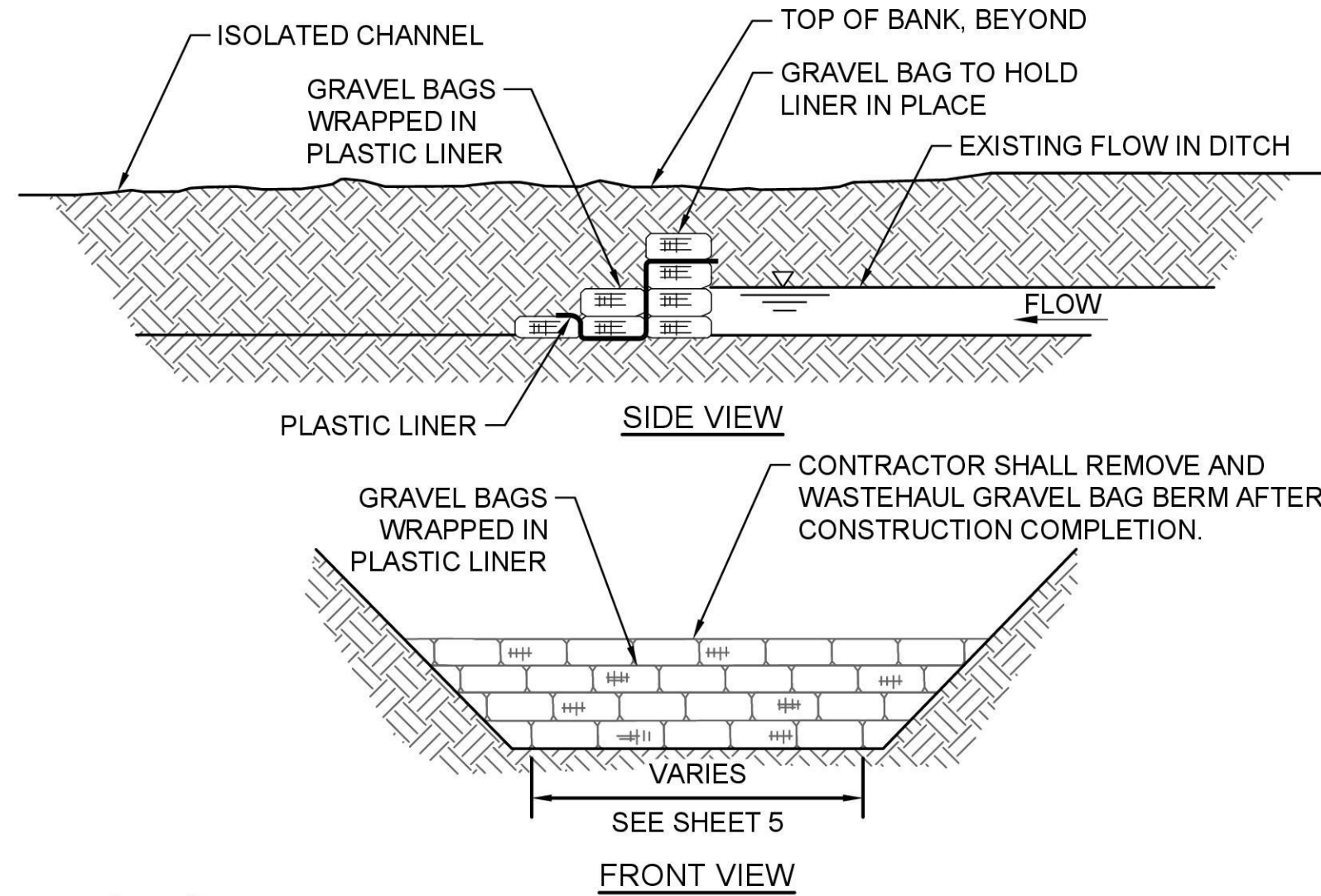
**GROUP 1**



**NOTES:**

- MINIMUM FOUR (4) FOOT HIGH TEMPORARY FENCING SHALL BE INSTALLED FIVE (5) FEET BEYOND THE DRIPLINE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY ENGINEER.
- TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.
- NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE ENGINEER. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE ENGINEER.

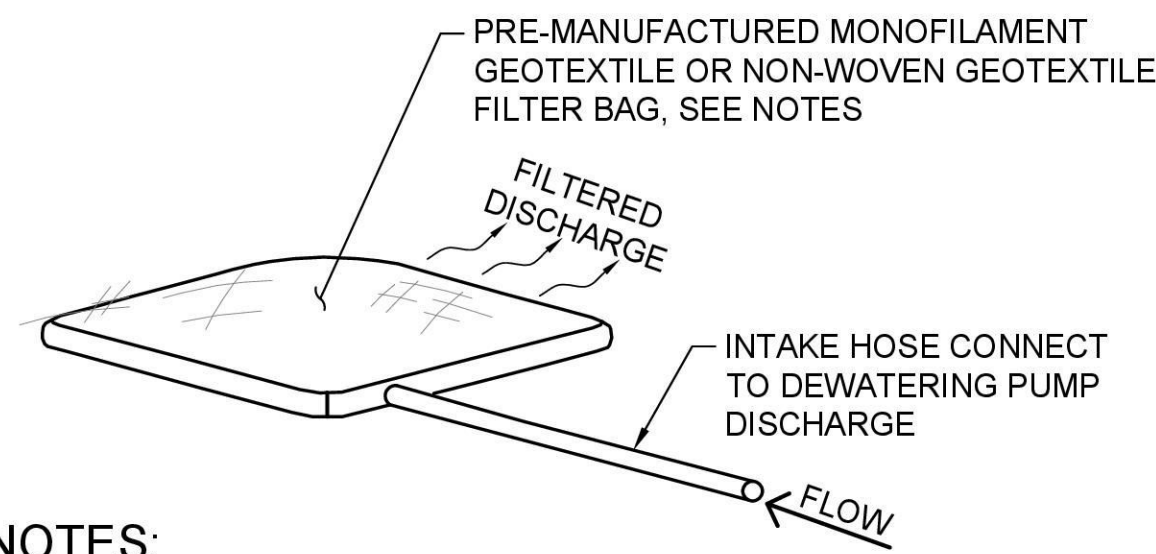
**1**  
5 **TREE PROTECTION FENCE DETAIL**  
N.T.S.



**NOTES:**

- GRAVEL BAGS SHALL BE FILLED WITH ROUNDED PEA GRAVEL OR CLEAN SAND; NO ANGULAR OR CRUSHED MATERIALS MAY BE USED. GRAVEL BAGS SHALL BE WASTEHAULED AND PROPERLY DISPOSED OFF-SITE AFTER REMOVAL OF BERM.
- MINIMUM ONE (1) FOOT OF FREEBOARD FROM THE WATER SURFACE TO THE TOP OF THE GRAVEL BAG BERM.

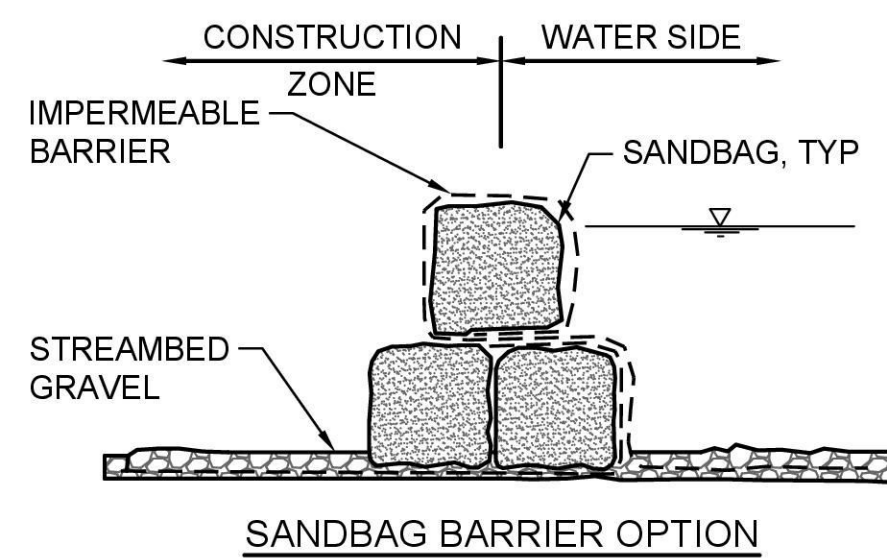
**2**  
5 **GRAVEL BAG BERM DETAIL**  
N.T.S.



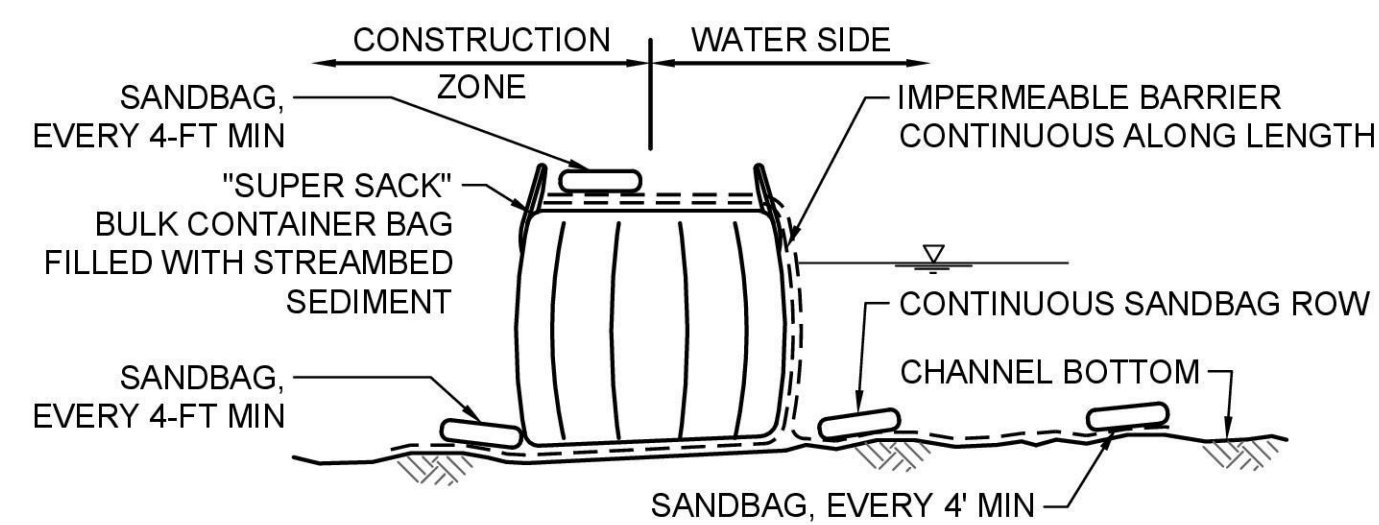
**NOTES:**

- FILTER BAG SHALL BE MINIMUM 10-FT X 15-FT AND REPLACED AS NEEDED TO ACCOMMODATE ACTUAL SEDIMENT LOAD CONDITIONS (I.E. VOLUME, TYPE OF SEDIMENT, ETC.)
- DRAIN FILTER BAG TO APPROVED RECEIVING AREA. RECEIVING AREA SHALL BE GRASSY AND UPLAND OF THE OHWM.
- FILTER BAG SYSTEM TO BE INSPECTED DAILY WHEN IN USE TO VERIFY ADEQUATE PERFORMANCE.

**3**  
5 **FILTER BAG DETAIL**  
N.T.S.



**SANDBAG BARRIER OPTION**

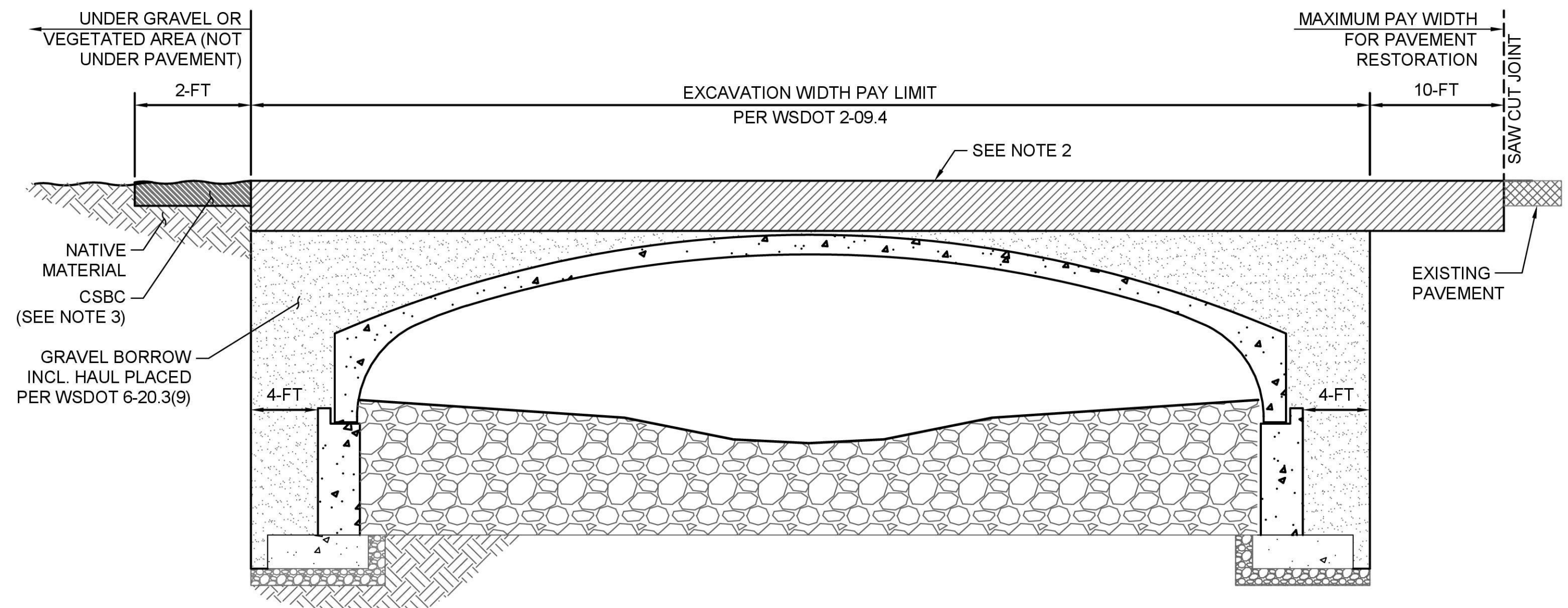


**SUPERSACK BARRIER OPTION**

**NOTE:**

- THESE ARE CONCEPTUAL WATER BARRIER OPTIONS. CONTRACTOR MAY USE ALTERNATIVE AS APPROVED BY ENGINEER. MUST MAINTAIN A MINIMUM 1" OF FREEBOARD ON THE WATER SIDE OF THE COFFER DAM.

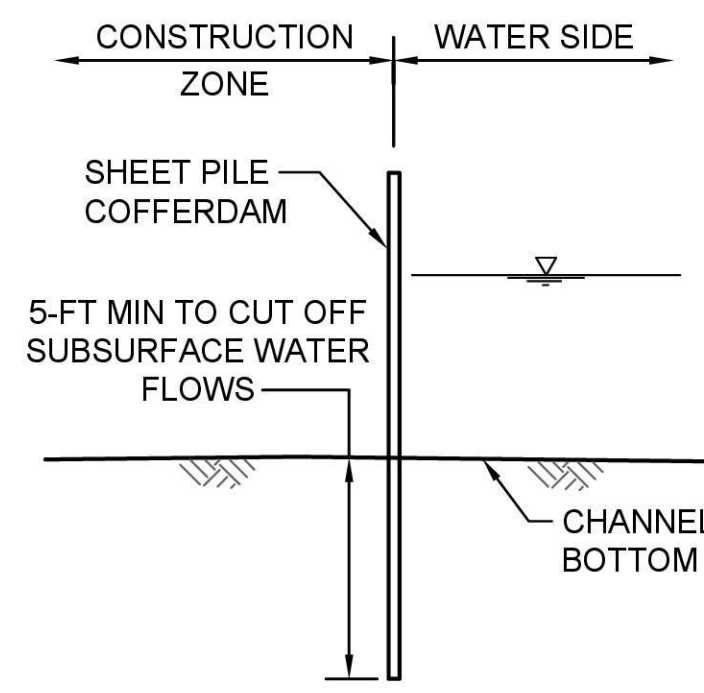
**4**  
5 **COFFER DAM OPTIONS**  
N.T.S.



**TYPICAL TRENCH NOTES:**

- BACKFILL MATERIAL SHALL BE GRAVEL BORROW, WSDOT STD. SPEC. 9-03.14(1). PLACEMENT SHALL COMPLY WITH WSDOT STD. SPEC. 6-20.3(9).
- FOR PAVEMENT RESTORATION, ASPHALT SHALL BE HMA CLASS 1/2 IN PG 58H-22 WITH A COMPACTED DEPTH OF 8-IN PLACED OVER 6-IN OF COMPACTED CSBC. WHEN PLACING ASPHALT OVER TOP OF THE CULVERT, ASPHALT SHALL HAVE A MINIMUM COMPACTED DEPTH OF 6-IN. PAVEMENT SHALL BE SAWCUT FOR A SMOOTH JOINT PRIOR TO PAVING. PATCH SHALL BE MACHINE ROLLED FLUSH WITH EXISTING PAVEMENT AND SHALL BE PLACED PER SECTION 5-04 OF WSDOT SPECIFICATIONS.
- FOR GRAVEL AREAS RESTORATION, MINIMUM DEPTH OF GRAVEL SHALL BE 6-IN CSBC, PAID FOR BY "CRUSHED SURFACING BASE COURSE". VEGETATED AREAS RESTORATION SHALL HAVE THE TOP 8-IN FINISHED WITH TOPSOIL TYPE A.

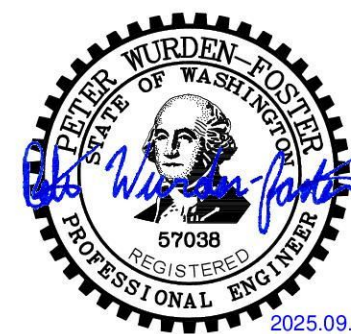
**5**  
6 **TYPICAL TRENCH SECTION**  
N.T.S.



**SHEETPILE BARRIER OPTION**



|                        |                         |
|------------------------|-------------------------|
| UPI NO.:<br>21-0024    | FED. AID PROJ. NO.:     |
| SURVEY NO.:            | FIELD BOOK(S):          |
| HORZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF    | DRAWN BY:<br>JAR        |



REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. McCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER  
10/6/2025  
DATE APPROVED:

**SNOHOMISH COUNTY  
DEPARTMENT OF  
CONSERVATION AND  
NATURAL RESOURCES**

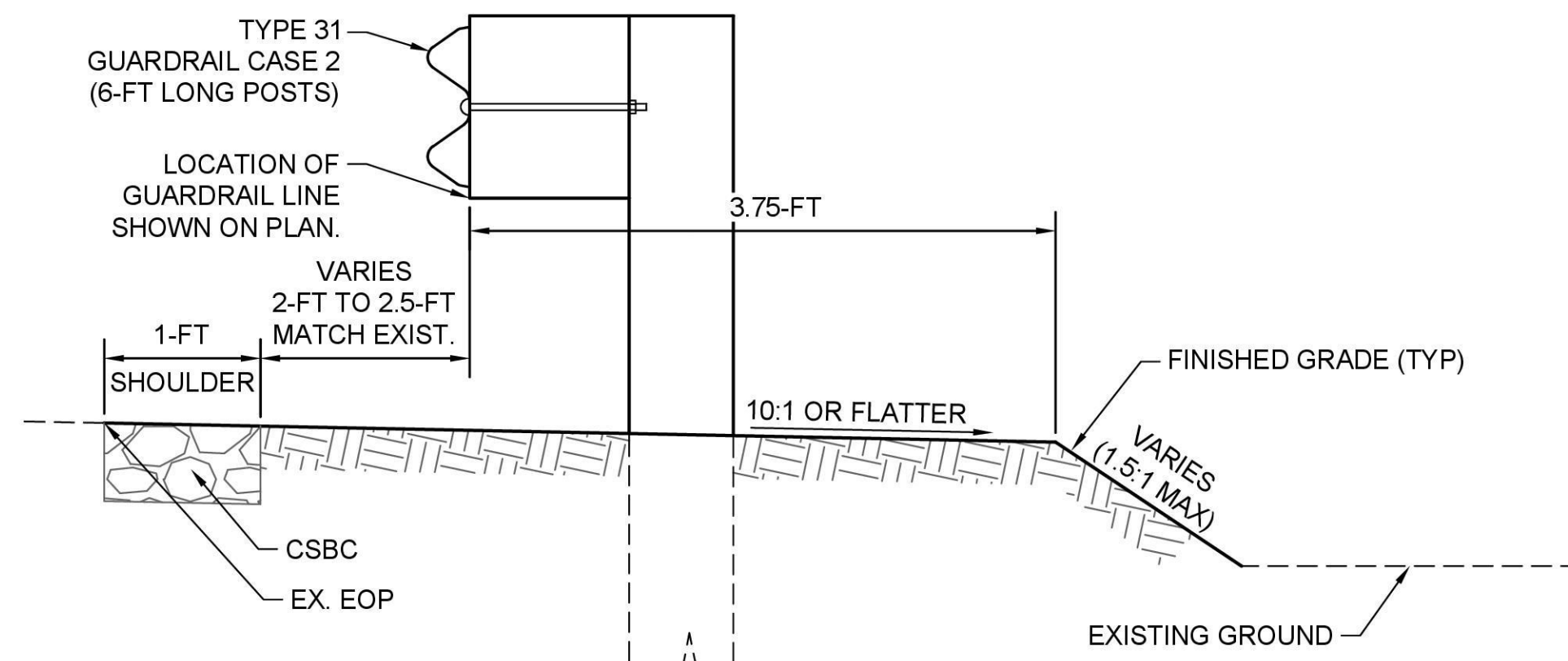
FUNDING NO. WC8684

**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE

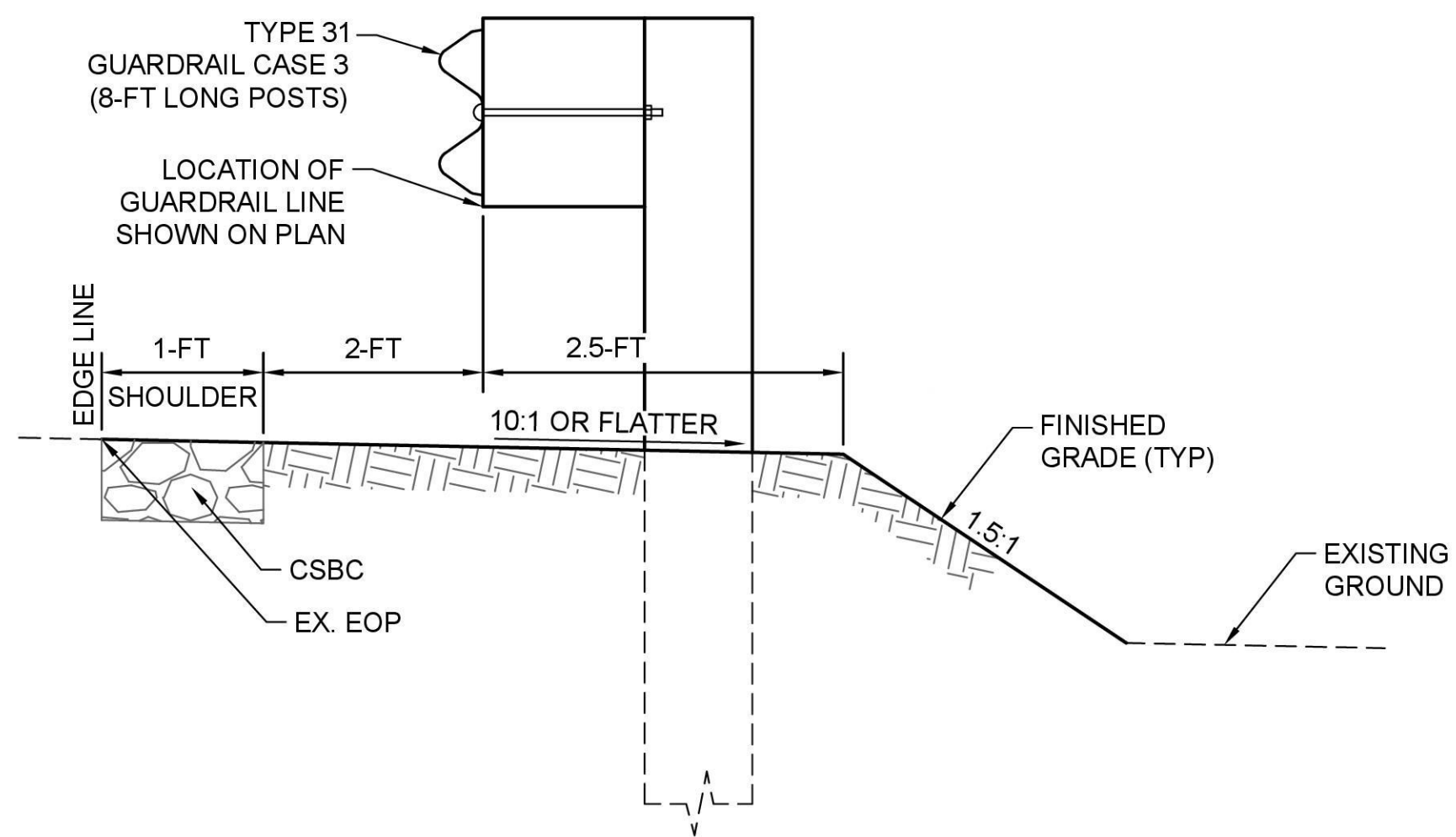
**DETAILS - 4**

**GROUP 1**

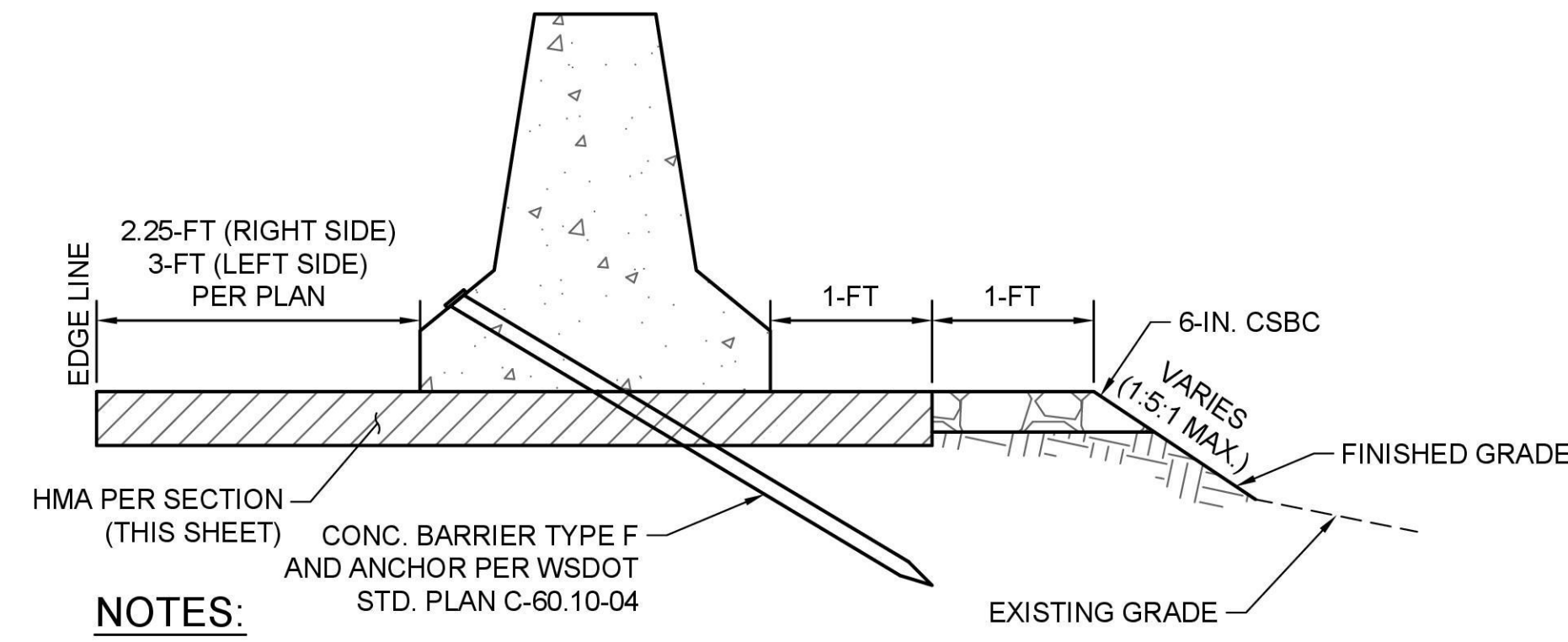
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| REFERENCE SHEET NO.<br>DT04       |
| SHEET<br>14<br>OF<br>16<br>SHEETS |



**1**  
10  
**BEAM GUARDRAIL TYPE 31  
INSTALLATION 6-FT POSTS**  
N.T.S.

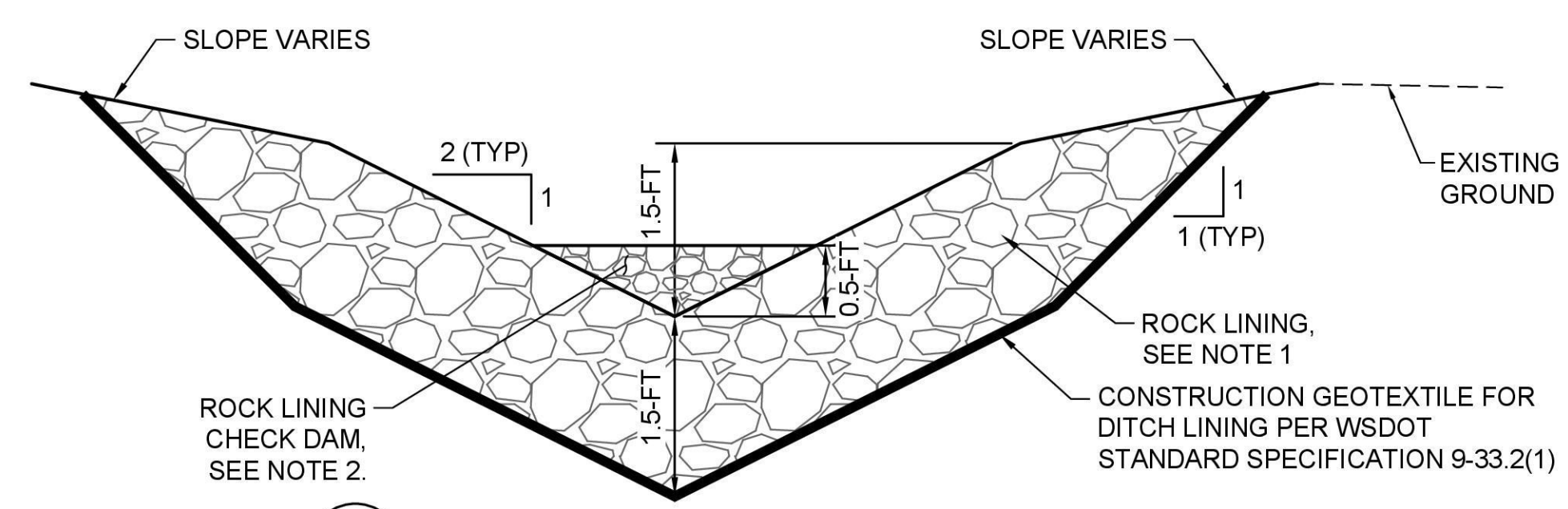


**2**  
10  
**BEAM GUARDRAIL TYPE 31  
INSTALLATION 8-FT POSTS**  
N.T.S.

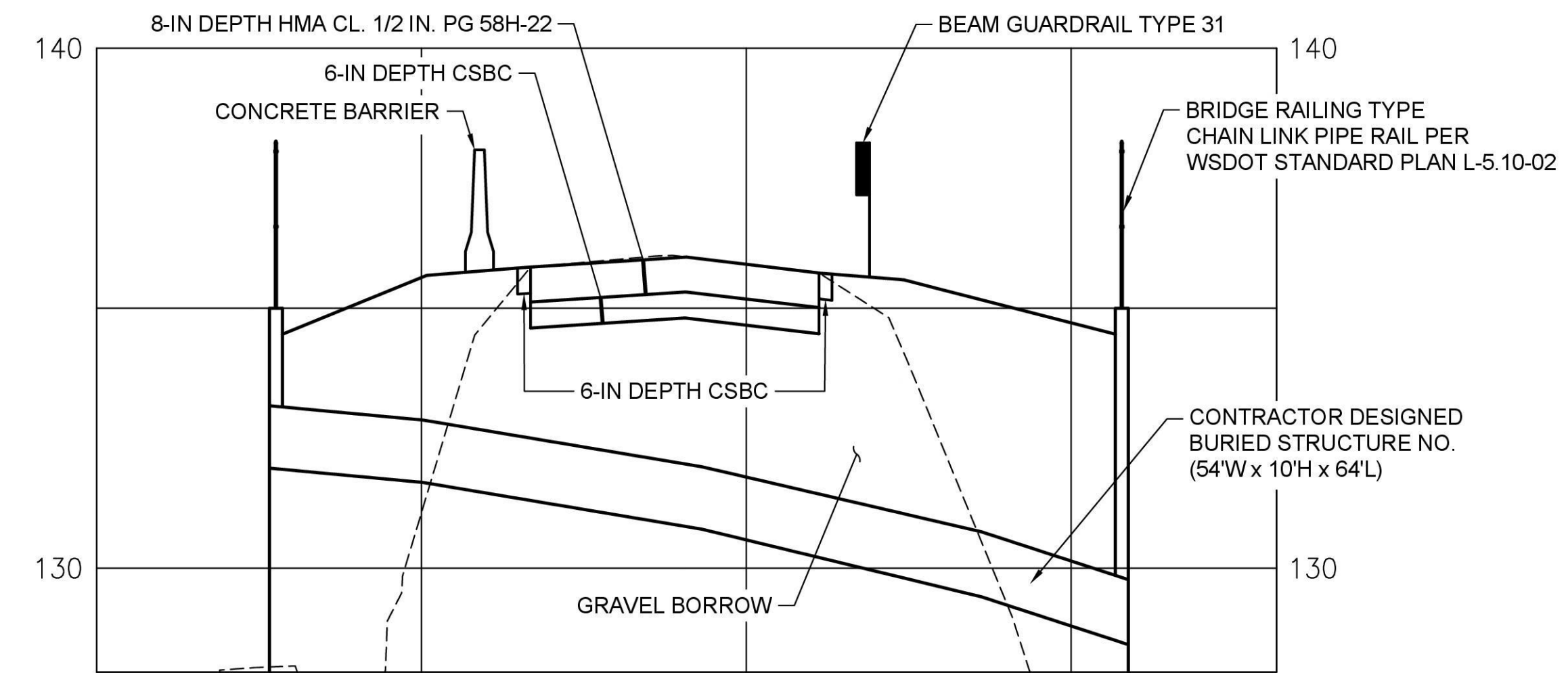


**3**  
10  
**CONCRETE BARRIER SECTION**  
N.T.S.

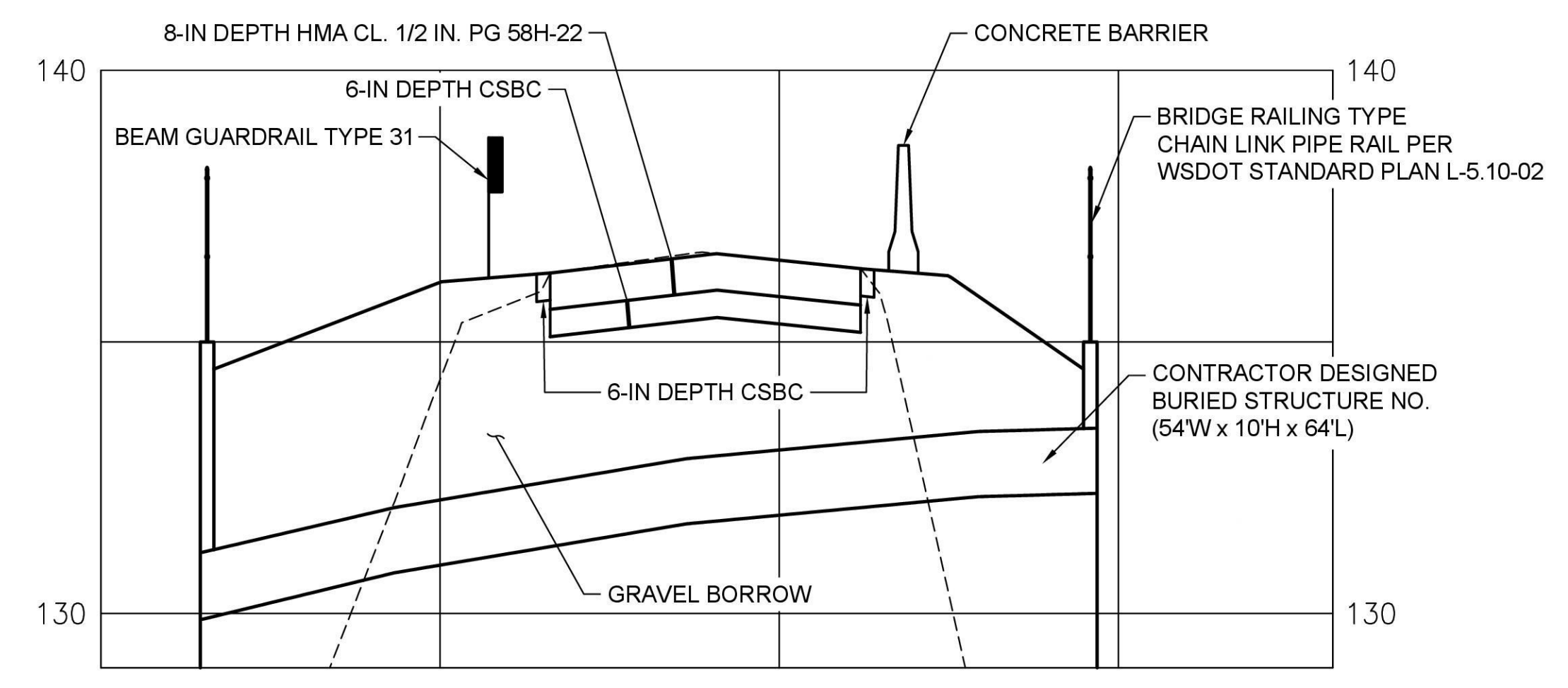
**NOTES:**  
1. 9-FOOT OR 11-FOOT POSTS MAY BE SHOWN ON PLAN. FOLLOW TABLE ON WSDOT STD. PLAN C-20.10-09 FOR LOCATION OF SLOPE BREAK POINT IN THE LOCATION OF THESE LONGER POSTS.



**4**  
6  
**DITCH**  
N.T.S.



**5**  
10  
**SOUTH ROADWAY & HEADWALL  
TYPICAL SECTION**  
SCALE: V:1"=10', H:1"=2.5'



**6**  
10  
**NORTH ROADWAY & HEADWALL  
TYPICAL SECTION**  
SCALE: V:1"=10', H:1"=2.5'

- NOTES:**
- ROCK LINING SHALL BE COMPOSED OF QUARRY SPALLS PER WSDOT STANDARD SPECIFICATION 9-13.1(5).
  - INSTALL CHECK DAM COMPOSED OF ROCK LINING AT 10-FOOT ON CENTER FROM RLD STA 1+04 TO RLD STA 1+40.
  - CHECK DAMS SHALL BE 8-FEET LONG AND HAVE A MAXIMUM SLOPE OF 2H:1V.

September 22, 2025 - 3:27 PM - MIKEM - C:\PW\_OSBORN\_WORKING\DWG\421-0024-DT5.DWG - Layout Name: DETAILS - 5

| DATE | NO. | REVISION | BY |
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| SURVEY NO.:             | FIELD BOOK(S):          |
| HORIZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF     | DRAWN BY:<br>JAR        |



REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. MCCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER

10/6/2025  
DATE APPROVED:

**SNOHOMISH COUNTY  
DEPARTMENT OF  
CONSERVATION AND  
NATURAL RESOURCES**

FUNDING NO. WC8684

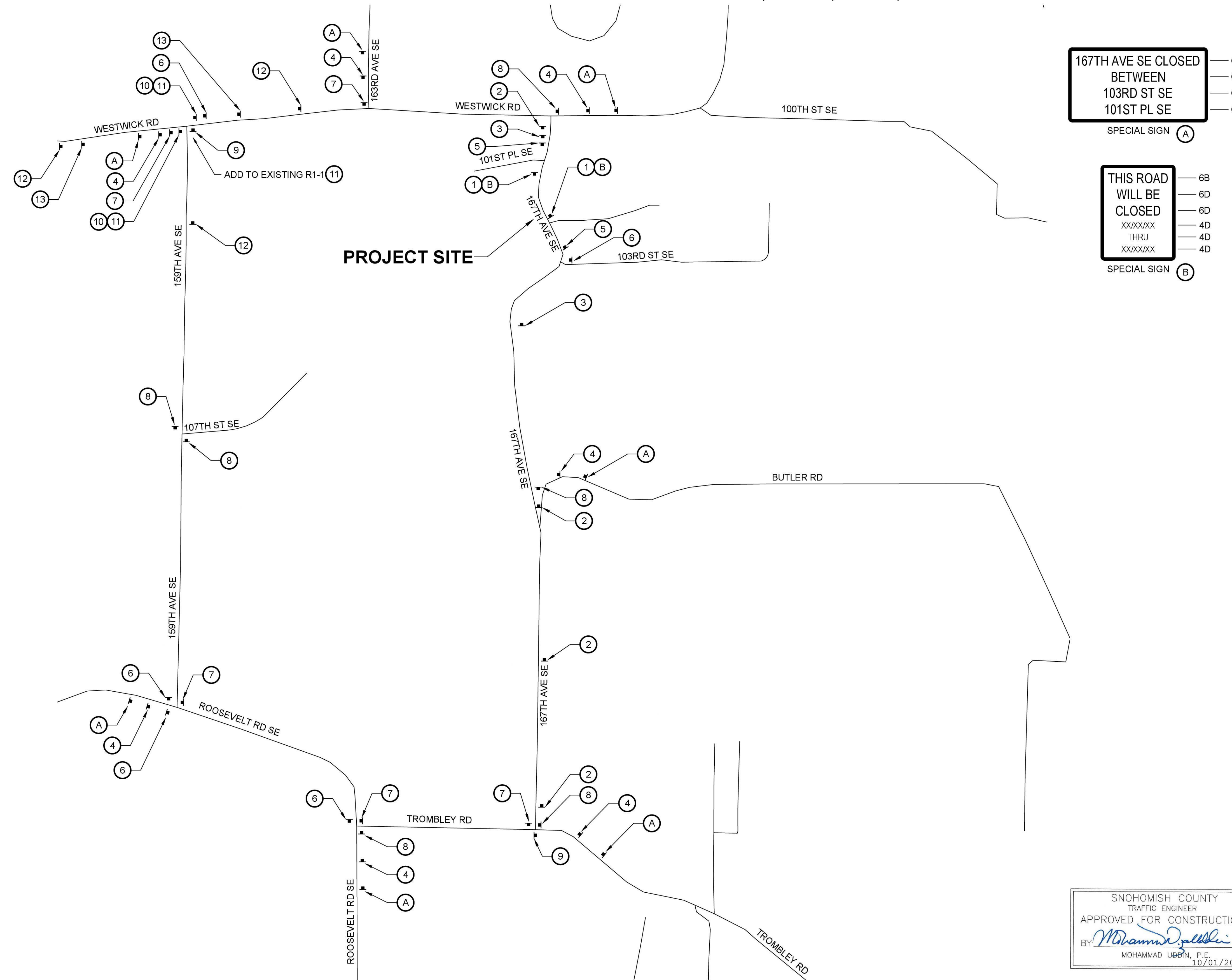
**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE

**DETAILS - 5**

|                                   |
|-----------------------------------|
| REFERENCE SHEET NO.<br>DT05       |
| SHEET<br>15<br>OF<br>16<br>SHEETS |

**GROUP 1**

SECTION 23, T. 28 N, R. 6 E., W.M.



**167TH AVE SE CLOSED BETWEEN 103RD ST SE AND 101ST PL SE**  
SPECIAL SIGN (A)

**THIS ROAD WILL BE CLOSED**  
THRU  
SPECIAL SIGN (B)

**NOTES:**

1. A PROTECTIVE VEHICLE IS RECOMMENDED REGARDLESS IF A TRUCK MOUNTED ATTENUATOR (TMA) IS AVAILABLE; A WORK VEHICLE MAY BE USED. WHEN NO TMA IS USED, THE PROTECTIVE VEHICLE SHALL BE STRATEGICALLY LOCATED TO SHIELD WORKERS, WITH NO SPECIFIC ROLL-AHEAD DISTANCE.
2. NIGHT WORK REQUIRES ADDITIONAL ROADWAY LIGHTING AT FLAGGING STATIONS. SEE WSDOT STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.
3. SIGN SEQUENCE IS THE SAME FOR BOTH DIRECTIONS OF TRAVEL ON THE ROADWAY.
4. FOR SIGNS SIZE REFER TO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND WSDOT SIGN FABRICATION MANUAL M55-05.

**SIGN SPACING:**

| RURAL HIGHWAYS   | 60 / 65 MPH    | 800' ±     |
|--|----------------|------------|
| RURAL ROADS  | 45 / 55 MPH    | 500' ±     |
| RURAL ROADS & URBAN ARTERIALS                                  | 35 / 40 MPH    | 350' ±     |
| RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS | 25 / 30 MPH    | 200' ± (2) |
| URBAN STREETS  | 25 MPH OR LESS | 100' ± (2) |

ALL SIGNS ARE BLACK ON ORANGE UNLESS DESIGNATED OTHERWISE

**SIGNING SCHEDULE:**

|    |                     |                                  |
|----|---------------------|----------------------------------|
| 1  | R11-2               | RD CLOSED W/ TYPE III BARRICADE  |
| 2  | R11-4               | RD CLOSED TO THRU TRAFFIC        |
| 3  | W20-1               | ROAD WORK AHEAD                  |
| 4  | W20-2               | DETOUR AHEAD                     |
| 5  | W20-3               | ROAD CLOSED AHEAD                |
| 6  | M4-9 (L) WITH SNS*  | DETOUR ARROW LEFT                |
| 7  | M4-9 (R) WITH SNS*  | DETOUR ARROW RIGHT               |
| 8  | M4-9 (UP) WITH SNS* | DETOUR ARROW STRAIGHT            |
| 9  | M4-8A               | END DETOUR                       |
| 10 | R1-1                | STOP                             |
| 11 | R1-3P               | ALL-WAY                          |
| 12 | W20-901             | TRAFFIC REVISION AHEAD WITH FLAG |
| 13 | W3-1                | STOP AHEAD                       |
| A  | SPECIAL             | SEE DETAIL, THIS SHEET           |
| B  | SPECIAL             | SEE DETAIL, THIS SHEET           |

SNS = STREET NAME SIGN PLQ. 6" CHARACTERS BLACK ON ORANGE  
A & B - 6" CHARACTERS BLACK ON WHITE  
B - POST 5 DAYS IN ADVANCE

**LEGEND**

- CONSTRUCTION SIGN CLASS A



SNOHOMISH COUNTY  
TRAFFIC ENGINEER  
APPROVED FOR CONSTRUCTION  
BY: *Mohammad Uppin*  
MOHAMMAD UPPIN, P.E.  
10/01/2025

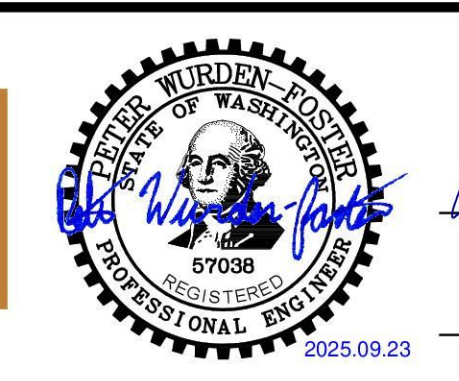
**GROUP 1**

September 22, 2025 - 3:27 PM - MIKEM - C:\PW\_OSBORN\_WORKING\DWG\421-0024-DR.DWG - Layout Name: 15 DETOUR ROUTE

| DATE | NO. | REVISION | BY |
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| UPI NO.:<br>21-0024    | FED. AID PROJ. NO.:     |
| SURVEY NO.:            | FIELD BOOK(S):          |
| HORZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>PWF/MP | DRAWN BY:<br>JAR        |



REVIEWED AND APPROVED FOR CONSTRUCTION  
*Douglas W. McCormick*  
DOUGLAS W. MCCORMICK, P.E.  
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DATE APPROVED:

SNOHOMISH COUNTY  
DEPARTMENT OF  
CONSERVATION AND  
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FUNDING NO. WC8684

**CULVERT REPLACEMENT**  
NEAR 10101 167TH AVE SE  
**DETOUR ROUTE**

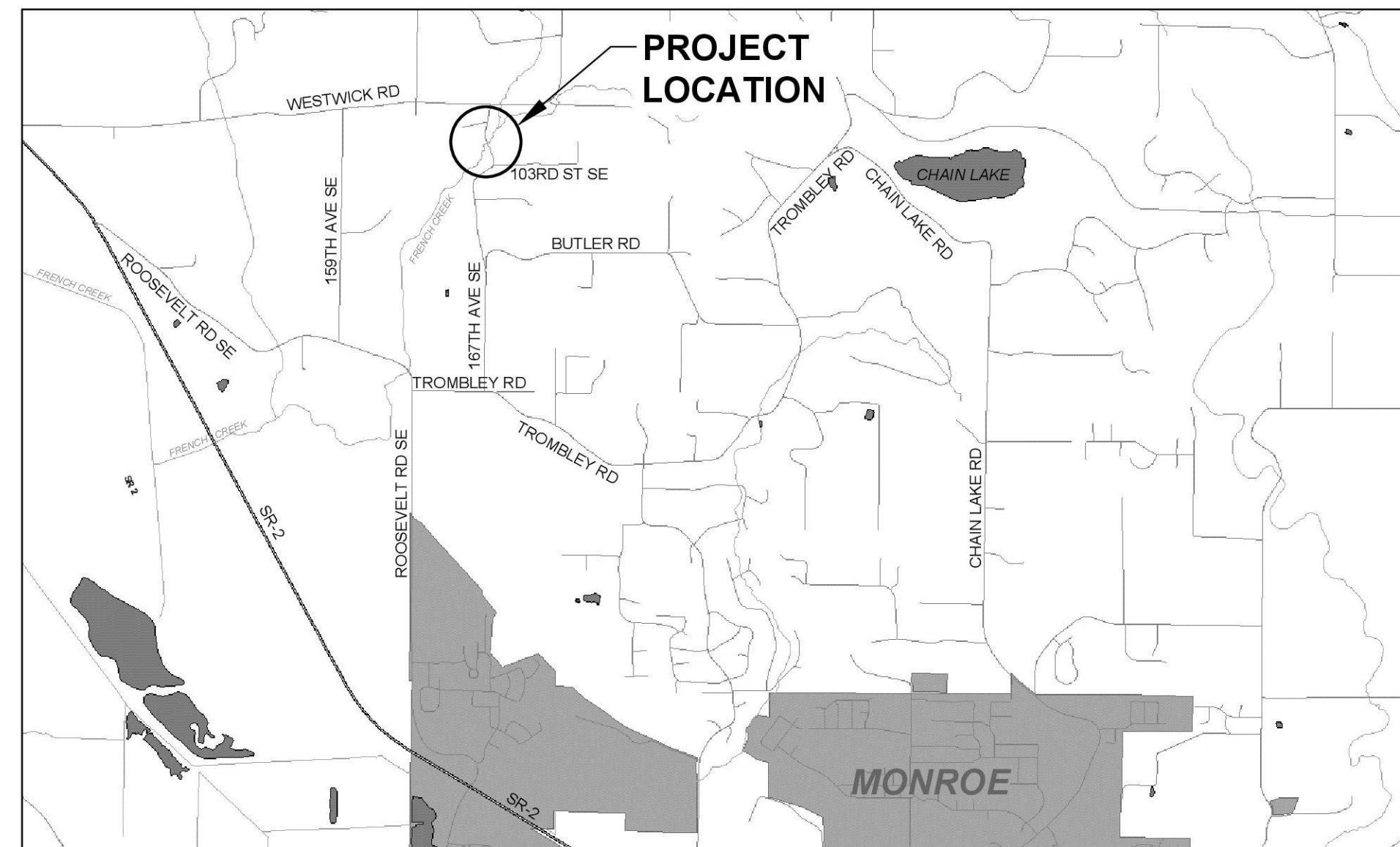
REFERENCE SHEET NO.  
DR01  
SHEET 16 OF 16 SHEETS

# WATERMAIN RELOCATION NEAR 10101 167TH AVE SE

## ROOSEVELT WATER ASSOCIATION PROJECT #WR28684

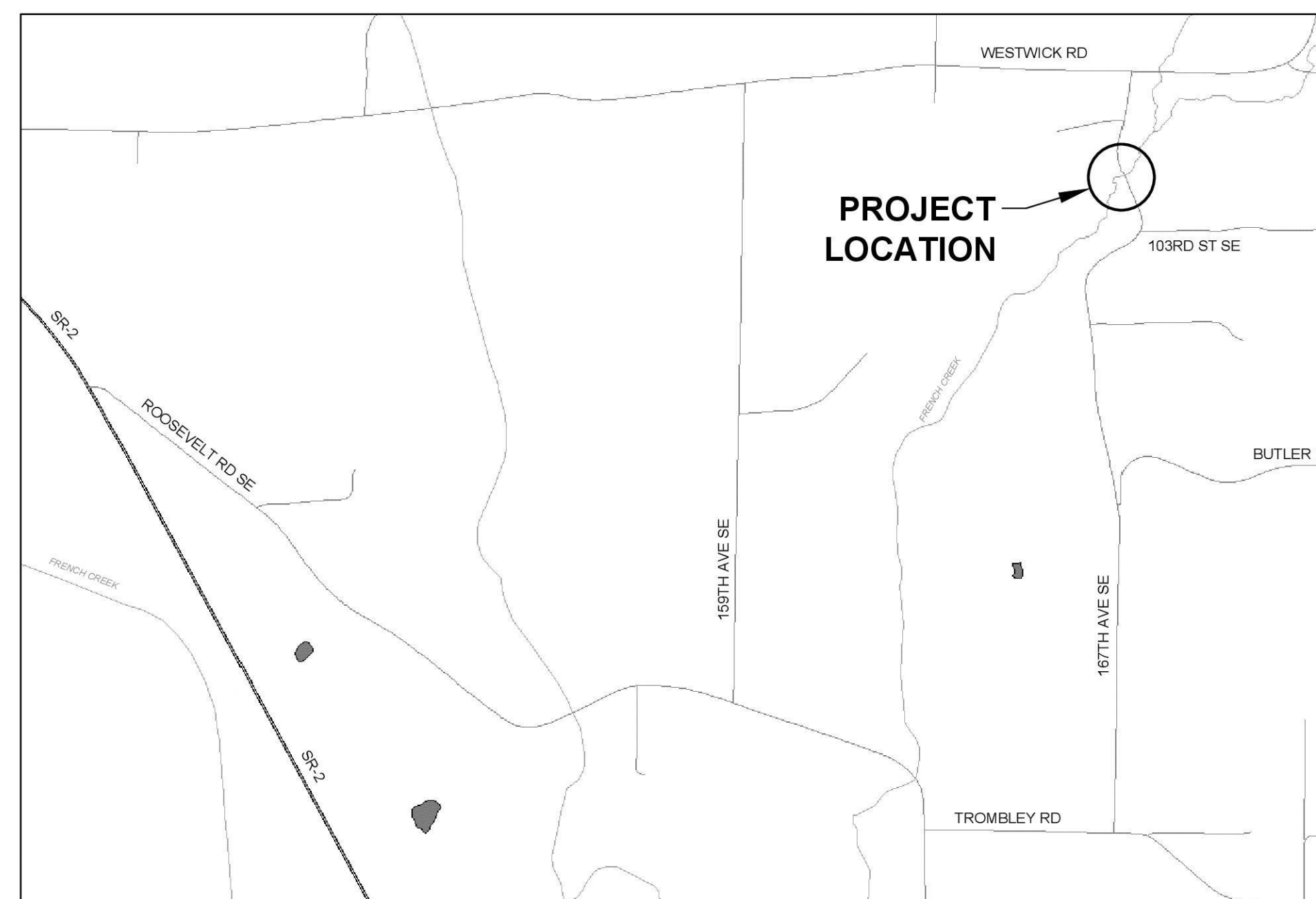
### SHEET INDEX

| SHEET NAME                               | SHEET # | REF # |
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| COVER SHEET                              | 1       | CV01  |
| GENERAL NOTES, LEGEND, AND ABBREVIATIONS | 2       | LA01  |
| WATER MAIN RELOCATION                    | 3       | PP01  |
| DETAILS                                  | 4       | DT01  |



**LOCATION MAP**

N.T.S.



**VICINITY MAP**

N.T.S.



JANELLE MACDICKEN, MANAGER  
ROOSEVELT WATER ASSOCIATION  
PO BOX 245 SNOHOMISH, WA 98921  
360.568.3450  
JANELLE@ROOSEVELTWATER.COM

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Consulting

www.osbornconsulting.com

September 22, 2025 - 12:12 PM - INDULEKSHMI - C:\PW\_OSBORN\_WORKING\INDMS4241425-00XX-LA.DWG - Layout Name: 2 LEGEND AND ABBREVIATIONS

**GENERAL NOTES:**

- CONTRACTOR TO COORDINATE WATER MAIN INSTALLATION WITH SNOHOMISH COUNTY 167TH AVE SE CULVERT IMPROVEMENT PROJECT #WC8684.
- WATER DESIGN IS BASED ON HORIZONTAL AND VERTICAL DATA ON CIVIL PLANS PROVIDED BY SNOHOMISH COUNTY FOR THE CULVERT REPLACEMENT NEAR 10101 167TH AVE SE (WC 8684).
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY LAWS AND REGULATIONS. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO THE NORMAL WORKING HOURS.
- EMERGENCY ACCESS AND ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
- WATER SERVICES SHALL BE MAINTAINED. SHUTDOWN WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM ROOSEVELT ASSOCIATION.
- NEW WATER MAIN SHALL BE TEMPORARILY BLOCKED, SATISFACTORILY PRESSURE AND PURITY TESTED, AND ALL DISINFECTION WATER PROPERLY DISPOSED PRIOR TO CONNECTING TO THE EXISTING MAINS.
- CONTRACTOR SHALL MAKE THE WATER MAIN CONNECTIONS UNDER ROOSEVELT ASSOCIATION SUPERVISION.
- VERTICAL BENDS SHALL BE USED ONLY UPON APPROVAL BY THE ROOSEVELT ASSOCIATION OR AS SPECIFICALLY SHOWN ON THE PLANS. DEFLECTION OF PIPES SHALL BE NO MORE THAN HALF OF THE MANUFACTURER'S RECOMMENDED MAX.
- PROVIDE BEST MANAGEMENT TEMPORARY EROSION CONTROL PRACTICE TO ENSURE NO SILT LADEN WATER DISCHARGES TO WATERS OF THE STATE.

**UTILITY CONTACT INFORMATION:**

SNOHOMISH COUNTY CONSERVATION AND NATURAL RESOURCES  
 3000 ROCKFELLER AVE., M/S 303. EVERETT, WA 98201  
 CONTACT DANIEL HOWE  
 DANIEL.HOWE@CO.SNOHOMISH.WA.US  
 425-359-7431

ASTOUND BROADBAND  
 4786 1ST AVE S  
 SUITE 101  
 SEATTLE, WA 98134  
 CONTACT: OSCAR PALUCHA  
 OSCAR.PALUCHA@ASTOUND.COM

SNOHOMISH COUNTY PUD  
 PO BOX 1107  
 EVERETT, WA 98206-1107  
 CONTACT: ANDY TRAN  
 AXTRAN@SNOPUD.COM  
 (425) 359-1123

ZIPLY FIBER  
 PO BOX 1127  
 EVERETT, WA 98206  
 CONTACT: SHANE NEWTON  
 SHANE.NEWTON1@ZIPLY.COM  
 (360) 322-2329  
 CONTACT: ANDREW GRANT  
 ANDREW.GRANT@ZIPLY.COM  
 (860) 917-7463

**ABBREVIATIONS:**

APPROX. APPROXIMATE, APPROXIMATELY  
 ASPH ASPHALT  
 CL CONSTRUCTION LIMITS, CENTERLINE, CLASS  
 CLRG CLEARING  
 CMP CORRUGATED METAL PIPE  
 COMM COMMUNICATION  
 CONC CONCRETE  
 CSBC CRUSHED SURFACING BASE COURSE  
 CULV CULVERT  
 DESC DESCRIPTION  
 DIA DIAMETER  
 DIP DUCTILE IRON PIPE  
 E EAST  
 EOP EDGE OF PAVEMENT  
 ELEV ELEVATION  
 FC FRENCH CREEK  
 EX EXISTING  
 FT, ' FOOT, FEET  
 H HEIGHT  
 HMA HOT MIX ASPHALT  
 IE INVERT ELEVATION  
 IN, " INCH, INCHES  
 INCL. INCLUDING  
 LF LINEAR FOOT  
 LMTS LIMITS  
 MAX MAXIMUM  
 MIN MINIMUM  
 MON MONUMENT  
 N NORTH  
 NE NORTHEAST  
 N.T.S. NOT TO SCALE  
 NW NORTHWEST  
 OHW ORDINARY HIGH WATER  
 PAR PARCEL  
 PSE PUGET SOUND ENERGY  
 R RADIUS  
 REF. REFERENCE  
 RJ RESTRAINED JOINT  
 SE SOUTH EAST  
 STA STATION  
 STD STANDARD  
 SW SOUTHWEST  
 TCE TEMPORARY CONSTRUCTION EASEMENT  
 TESC TEMPORARY EROSION AND SEDIMENT CONTROL  
 THW THALWEG  
 TRD TREE DIAMETER  
 TRE TREE  
 TYP TYPICAL  
 W WEST, WIDTH  
 WL WETLAND LIMIT  
 WSDOT WASHINGTON DEPARTMENT OF TRANSPORTATION  
 WSE WATER SURFACE ELEVATION

**LEGEND:**

- EXISTING DITCH LINE
- PROPOSED DITCH LINE
- EDGE OF CREEK LINE
- ORDINARY HIGH WATER LINE
- CREEK THALWEG
- WETLAND LINE
- UNDERGROUND POWER
- UNDERGROUND WATER
- CULVERT (WIDTH TO SCALE)
- COMMUNICATION LINE
- GUARD RAIL
- EDGE OF GRAVEL
- EXISTING RIGHT-OF-WAY CENTERLINE
- EXISTING RIGHT-OF-WAY LINE
- PROPERTY LINE
- EXISTING EASEMENT LINE
- SURVEY LIMIT
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE
- SECTION LINE
- QUARTER SECTION LINE
- PERMANENT EASEMENT LINE
- TEMPORARY EASEMENT LINE
- PROPOSED GUARD RAIL
- MONUMENT IN CASE
- CONTROL POINT REBAR
- CONTROL POINT MAG NAIL/WASHER
- BOULDER
- DECIDUOUS TREE
- EVERGREEN/CONIFER TREE
- TRANSFORMER
- MAILBOX
- COMM RISER
- MONITOR WELL
- BORE HOLE
- WETLAND FLAG
- WATER VALVE MARKER
- WATER VALVE
- GUY ANCHOR
- POWER POLE
- UTILITY POLE

**GROUP 2**

| DATE | NO. | REVISION | BY |
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| SURVEY NO.:            | FIELD BOOK(S):          |
| HORZ. DATUM:<br>NAD 83 | VERT. DATUM:<br>NAVD 88 |
| DESIGNED BY:<br>IL/ DC | DRAWN BY:<br>JAR/MRM    |



REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*

DOUGLAS W. McCORMICK, P.E.  
 SNOHOMISH COUNTY ENGINEER

10/6/2025  
 DATE APPROVED:

**ROOSEVELT WATER ASSOCIATION**

FUNDING NO. WR28684

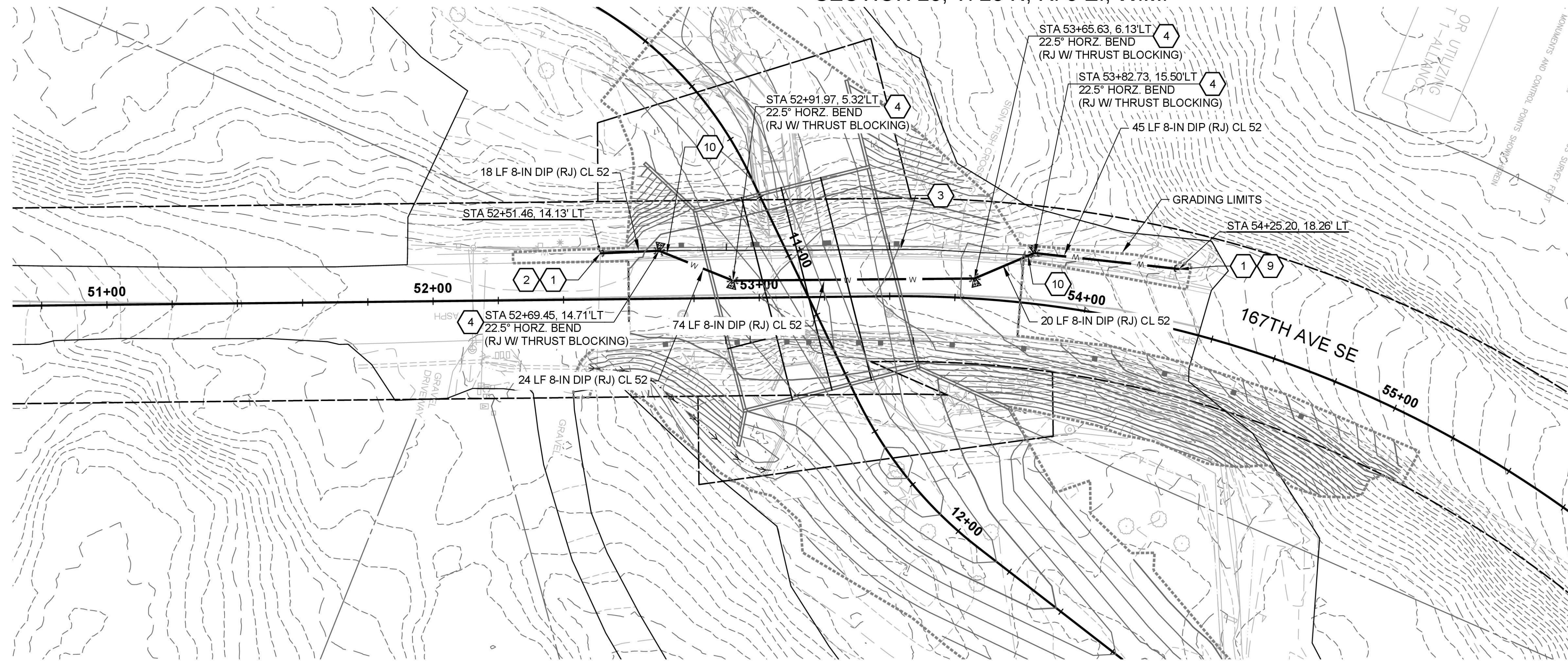
**ROOSEVELT WATER ASSOCIATION**

NEAR 10101 167TH AVE SE

**GENERAL NOTES, LEGEND, AND ABBREVIATIONS**

|                             |
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| REFERENCE SHEET NO.<br>LA01 |
| SHEET 2 OF 4 SHEETS         |

SECTION 23, T. 28 N, R. 6 E., W.M.

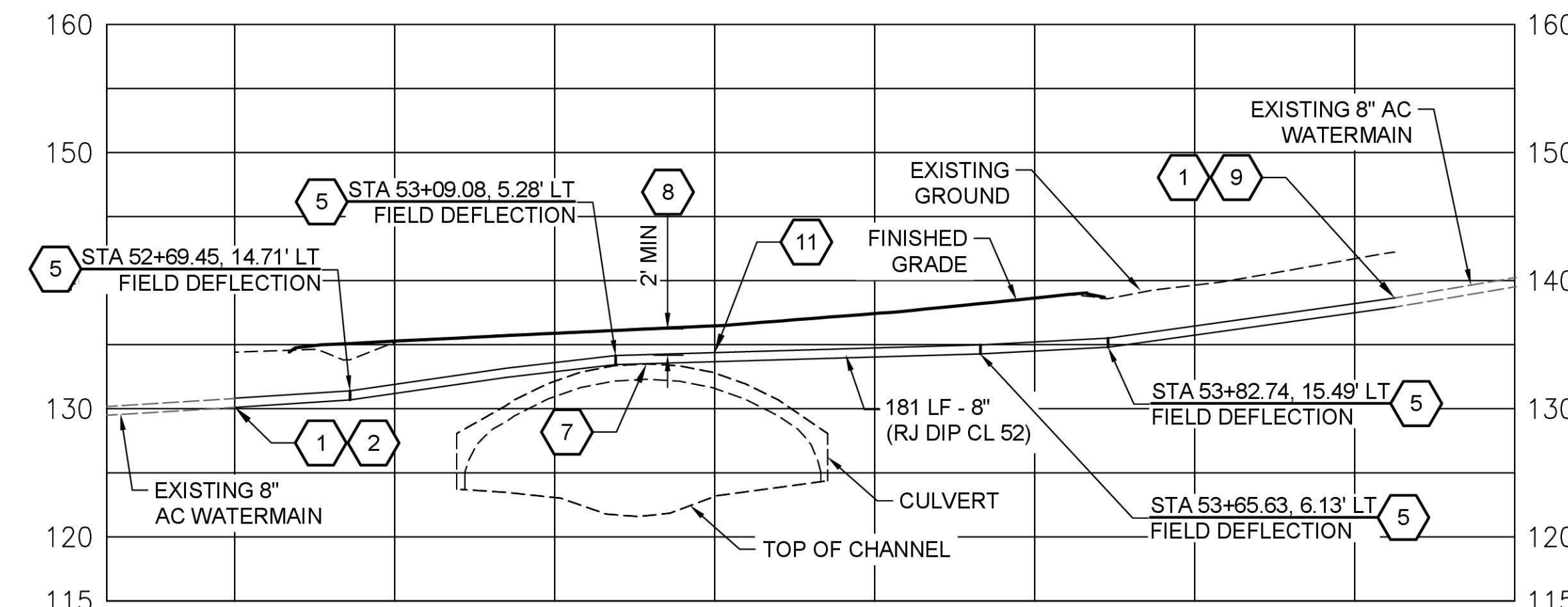


GENERAL NOTES

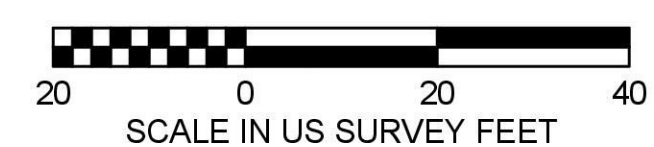
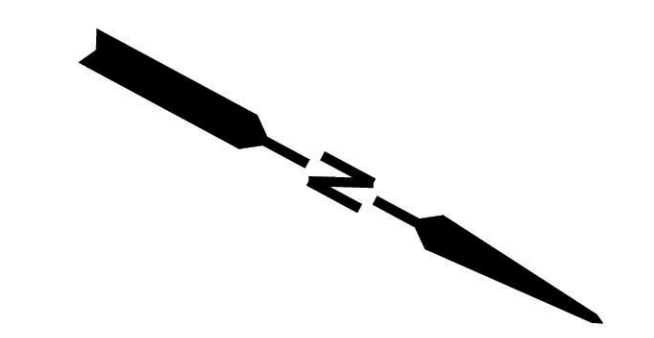
- LOCATIONS SHOWN OF EXISTING UTILITIES AND IMPROVEMENTS ARE APPROXIMATE ONLY, AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXACT LOCATIONS OF ALL UTILITIES AND IMPROVEMENTS TO AVOID DAMAGE OR DISTURBANCE.
- CONTRACTOR SHALL INSTALL TESC MEASURES PER SNOHOMISH COUNTY 167TH AVE SE CULVERT REPLACEMENT PROJECT TESC PLAN.
- THIS PLAN SHEET WAS PREPARED PRIOR TO RELOCATION OF THE EXISTING WATER MAIN ON BOTH THE EAST AND WEST SIDES OF THE PROJECT AREA BY THE ROOSEVELT WATER ASSOCIATION. AS A RESULT, THE SURVEY MAY NOT ACCURATELY REFLECT THE CURRENT CONDITION OF THE WATERLINE OUTSIDE THE PROJECT LIMITS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING SITE CONDITIONS AND IMPLEMENTING ANY NECESSARY ADJUSTMENTS IN COORDINATION WITH THE ENGINEER AND THE ROOSEVELT WATER ASSOCIATION.
- CONTRACTOR SHALL CALL 811 PRIOR TO CONSTRUCTION, FOR AID IN LOCATION OF ANY EXISTING UNDERGROUND UTILITIES.
- THE CONTRACTOR SHALL KEEP TWO SETS OF PLANS ON SITE AT ALL TIMES FOR RECORDING "AS BUILT'S" INFORMATION. ONE SET SHALL BE SUBMITTED TO ROOSEVELT WATER ASSOCIATION AT COMPLETION OF CONSTRUCTION.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE ROOSEVELT WATER ASSOCIATION FOR A PRECONSTRUCTION MEETING. PHONE: 360-568-3450.
- FOR ALL UNDERGROUND INSTALLATIONS WITHIN THE COUNTY R/W THE WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH EDDS SECTION 8-02, 8-04, 8-05, 8-09 AND THE MOST RECENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA).
- PAVEMENT RESTORATION SHALL BE PERFORMED IN ACCORDANCE WITH THE SNOHOMISH COUNTY 167TH AVE SE CULVERT REPLACEMENT PROJECT RESTORATION PLAN.

## CONSTRUCTION NOTES

- CONTRACTOR SHALL VERIFY DEPTH OF EXISTING WATERMAIN AT TERMINATION POINT PRIOR TO CONNECTION.
- REMOVE CAP AND BLOCKING INSTALLED BY ROOSEVELT WATER ASSOCIATION AT TERMINATION OF EXISTING WATER MAIN. CONNECT PROPOSED 8-INCH DI WATER MAIN TO PREVIOUSLY INSTALLED GATE VALVE.
- REMOVE EXISTING AC WATER MAIN AND APPURTENANCES WITHIN GRADING LIMITS.
- THRUST BLOCKING PER DETAIL 1 ON SHEET 4.
- CONTRACTOR SHALL DEFLECT THE PIPE AS NECESSARY (2.5" MAX) TO ACHIEVE PROFILE AS SHOWN ON THIS SHEET.
- THRUST BLOCKING FOR VERTICAL BENDS PER DETAIL 2 ON SHEET 4. USE IF NEEDED, PROVIDED FOR REFERENCE.
- INSTALL ETHAFOAM PAD BETWEEN THE WATER MAIN AND CULVERT.
- PROVIDE MINIMUM OF 2-FOOT COVER OVER THE TOP OF THE PROPOSED WATER MAIN PIPE.
- LOCATE AND CONNECT TO EXISTING GATE VALVE (RJ).
- COORDINATE WITH TELECOM UTILITY PROVIDERS AT LOCATIONS WHERE THE PROPOSED WATER MAIN ALIGNMENT WILL BE CROSSING THEM.
- PROVIDE INSULATION SLEEVE FOR NEW 8-IN DI WATER MAIN AT LOCATIONS WHERE THE PIPE COVER IS LESS THAN 3-FOOT.



WATER MAIN PROFILE  
HORIZONTAL SCALE: 1"=20', VERTICAL SCALE: 1"=10'



GROUP 2

September 22, 2025 - 12:12 PM - MIKEM - C:\PW\_OSBORN\_WORKING\DWG\241425-00XX-WATR.DWG - Layout Name: WATER P&P

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REVIEWED AND APPROVED FOR CONSTRUCTION

*Douglas W. McCormick*  
DOUGLAS W. MCCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER

10/6/2025  
DATE APPROVED:

09-22-2025

**ROOSEVELT WATER ASSOCIATION**

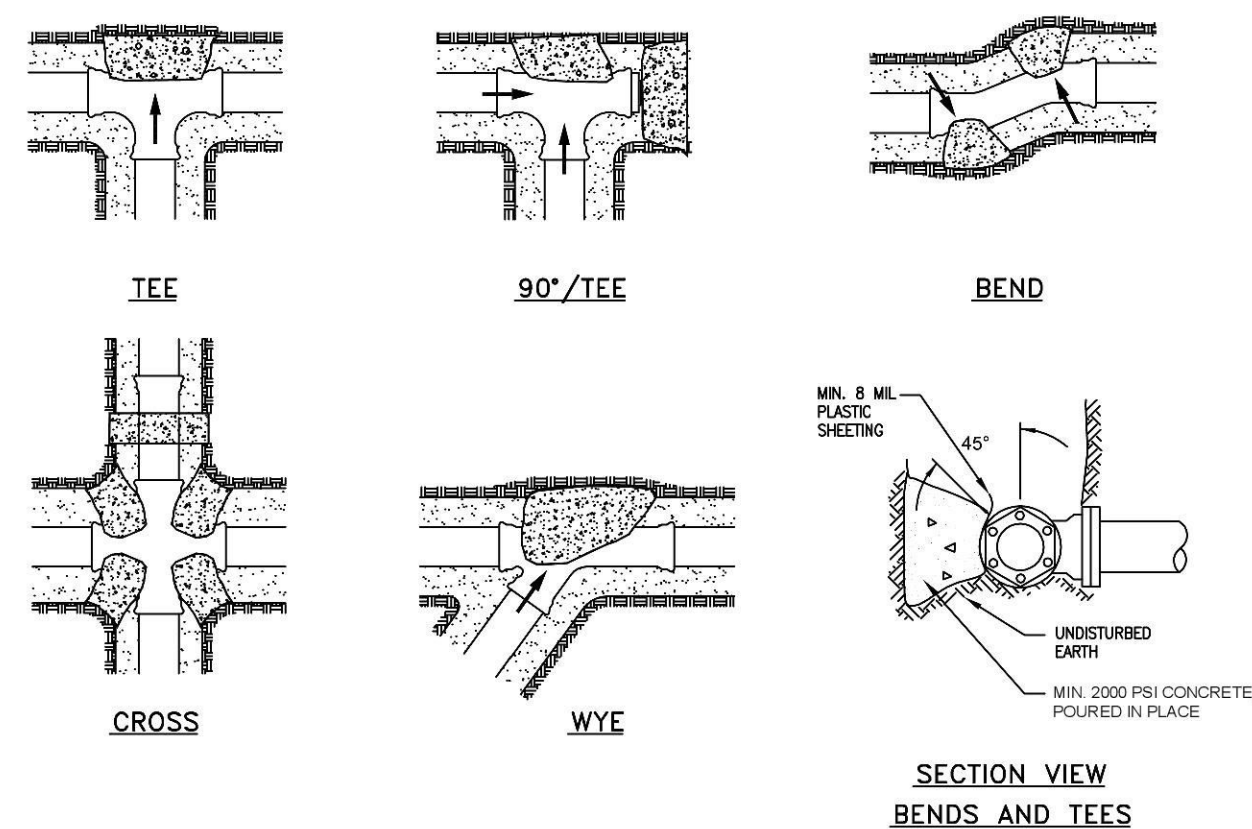
FUNDING NO. WR28684

**ROOSEVELT WATER ASSOCIATION**  
NEAR 10101 167TH AVE SE

**WATER MAIN RELOCATION**

|                             |
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| REFERENCE SHEET NO.<br>PP01 |
| SHEET 3 OF 4 SHEETS         |

September 22, 2025 - 12:12 PM - MIKEM - C:\PW\_OSBORN\_WORKING\DWG\4241425-00XX-WATR.DWG - Layout Name: DETAILS

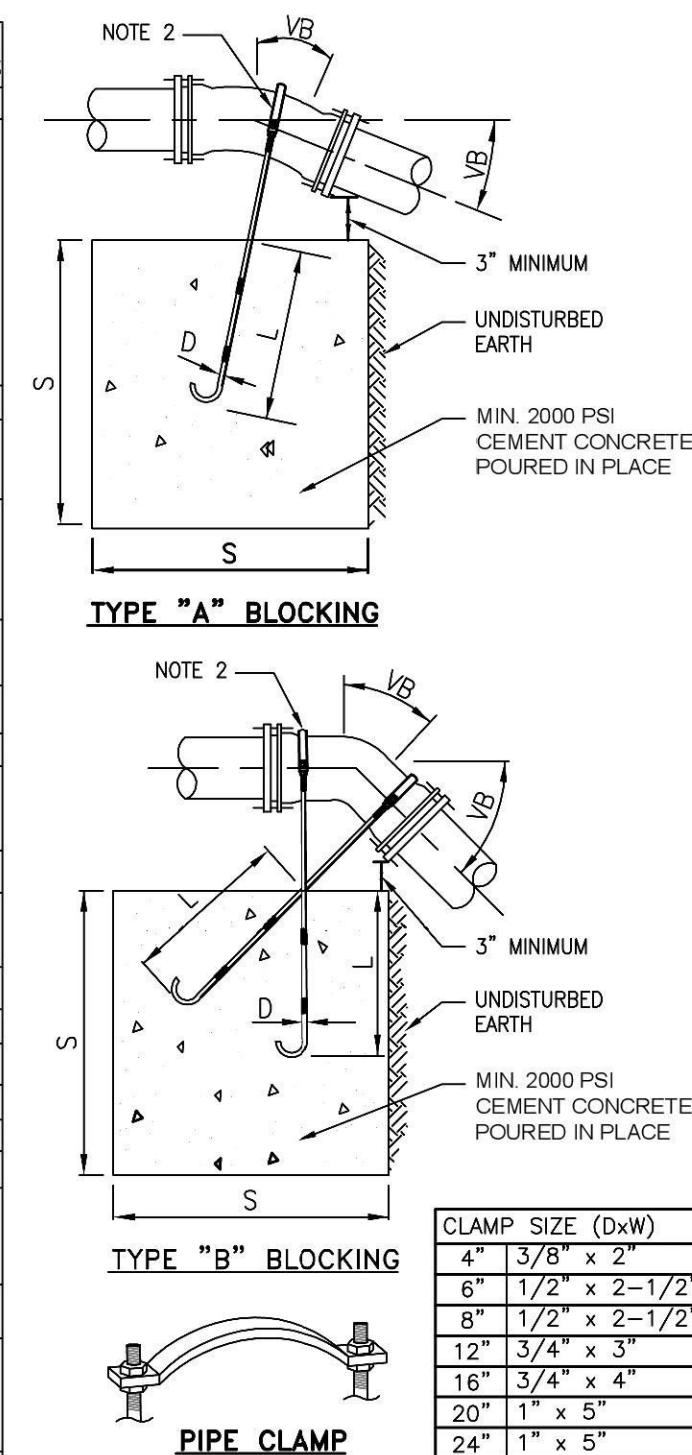


| HORIZONTAL THRUST BLOCKS         |                        |               |          |              |              |       |
|----------------------------------|------------------------|---------------|----------|--------------|--------------|-------|
| MIN. BEARING AREA IN SQUARE FEET |                        |               |          |              |              |       |
| Pipe Size in Inches              | Tees, Wyes & Dead Ends | 90° Bend/ Tee | 45° Bend | 22 1/2° Bend | 11 1/4° Bend | CROSS |
| 6                                | 7.00                   | 9.00          | 5.00     | 3.00         | 2.00         | 7.00  |
| 8                                | 12.00                  | 17.00         | 9.00     | 5.00         | 2.00         | 12.50 |
| 10                               | 18.00                  | 26.00         | 14.00    | 7.00         | 4.00         | 19.50 |
| 12                               | 26.00                  | 37.00         | 20.00    | 11.00        | 5.00         | 28.20 |
| 16                               | 47.00                  | 66.00         | 36.00    | 19.00        | 9.00         | 50.00 |
| 18                               | 59.00                  | 84.00         | 46.00    | 24.00        | 12.00        | 58.50 |
| 24                               | 106.00                 | 149.00        | 81.00    | 42.00        | 21.00        | 65.00 |

NOTES:  
1. BEARING AREA TABLE BASED ON 300 PSI PRESSURE AND 1500 PSF SOIL BEARING. IF PRESSURE IS GREATER OR SOIL BEARING IS LESS, THE THRUST BLOCK SIZE SHALL BE INCREASED.

1 THRUST BLOCKING DETAILS  
3 N.T.S.

| TYPE "A" BLOCKING                          |                     |                       |                                  |                       |                                      |                                    |     |
|--|---------------------|-----------------------|----------------------------------|-----------------------|--------------------------------------|------------------------------------|-----|
| FOR 11 1/4"-22 1/2"-33 3/4" VERTICAL BENDS |                     |                       |                                  |                       |                                      |                                    |     |
| PIPE SIZE NOM. DIAMETER - INCHES           | DESIGN PRESSURE PSI | VERTICAL BEND DEGREES | NO. OF CU. FT. OF CONC. BLOCKING | SIDE OF CUBE LIN. FT. | DIAM. OF THREADED RODS (2) SS INCHES | DEPTH OF RODS IN CONCRETE LIN. FT. |     |
| 4"   | 300                 | 11 1/4                | 8                                | 2                     | 5/8"                                 | 1.5                                |     |
|  |                     | 22 1/2                | 11                               | 2.2                   |                                      | 2.0                                |     |
|  |                     | 33 3/4                | 17                               | 2.6                   |                                      |                                    |     |
| 6"   | 300                 | 11 1/4                | 11                               | 2.2                   | 5/8"                                 | 2.0                                |     |
|  |                     | 22 1/2                | 25                               | 2.9                   |                                      |                                    |     |
|  |                     | 33 3/4                | 41                               | 3.5                   |                                      |                                    |     |
| 8"   | 300                 | 11 1/4                | 16                               | 2.5                   | 5/8"                                 | 2.0                                |     |
|  |                     | 22 1/2                | 47                               | 3.6                   |                                      |                                    |     |
|  |                     | 33 3/4                | 70                               | 4.1                   |                                      | 3/4"                               | 2.5 |
| 12"  | 250                 | 11 1/4                | 32                               | 3.2                   | 5/8"                                 | 2.0                                |     |
|  |                     | 22 1/2                | 88                               | 4.5                   |                                      | 7/8"                               | 3.0 |
|  |                     | 33 3/4                | 132                              | 5.1                   |                                      |                                    |     |
| 16"  | 225                 | 11 1/4                | 70                               | 4.1                   | 7/8"                                 | 3.0                                |     |
|  |                     | 22 1/2                | 184                              | 5.7                   |                                      | 1 1/8"                             | 4.0 |
|  |                     | 33 3/4                | 275                              | 6.5                   |                                      | 1 1/4"                             |     |
| 20"  | 200                 | 11 1/4                | 91                               | 4.5                   | 7/8"                                 | 3.0                                |     |
|  |                     | 22 1/2                | 225                              | 6.1                   |                                      | 1 1/4"                             | 4.0 |
|  |                     | 33 3/4                | 330                              | 6.9                   |                                      | 1 3/8"                             | 4.5 |
| 24"  | 200                 | 11 1/4                | 128                              | 5.0                   | 1"                                   | 3.5                                |     |
|  |                     | 22 1/2                | 320                              | 6.8                   |                                      | 1 3/8"                             | 4.5 |
|  |                     | 33 3/4                | 480                              | 7.9                   |                                      | 1 7/8"                             | 5.5 |



NOTES:  
1. APPROVAL OF LOCATION FROM THE ASSOCIATION IS REQUIRED PRIOR TO INSTALLATION.  
2. PIPE CLAMP SHALL BE GALVANIZED. BAR AND HARDWARE SHALL BE STAINLESS STEEL.

2 THRUST BLOCKING FOR VERTICAL BENDS  
3 N.T.S.

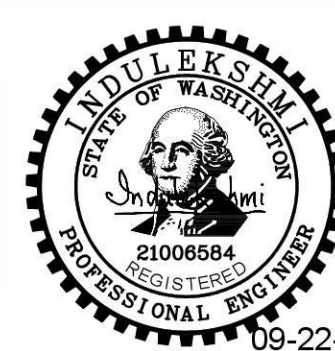
GROUP 2

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Osborn Consulting



REVIEWED AND APPROVED FOR CONSTRUCTION

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DOUGLAS W. MCCORMICK, P.E.  
SNOHOMISH COUNTY ENGINEER  
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DATE APPROVED:

**ROOSEVELT WATER ASSOCIATION**  
FUNDING NO. WR28684

**ROOSEVELT WATER ASSOCIATION**  
NEAR 10101 167TH AVE SE  
**DETAILS**

|                                 |
|---------------------------------|
| REFERENCE SHEET NO.<br>DT01     |
| SHEET<br>4<br>OF<br>4<br>SHEETS |