

# BARRIER PROTECTION

# ES78600-1

**FEDERAL AID NO. HSIP-000S(625)**

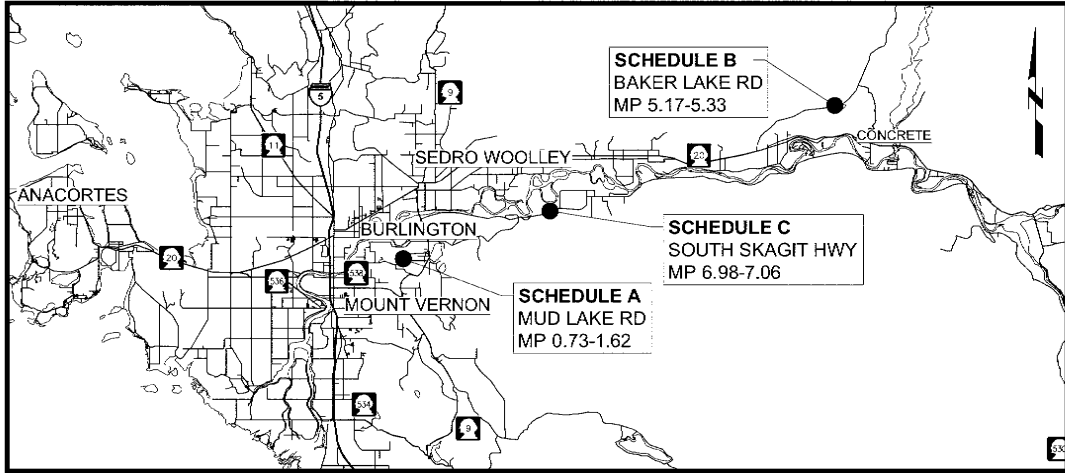
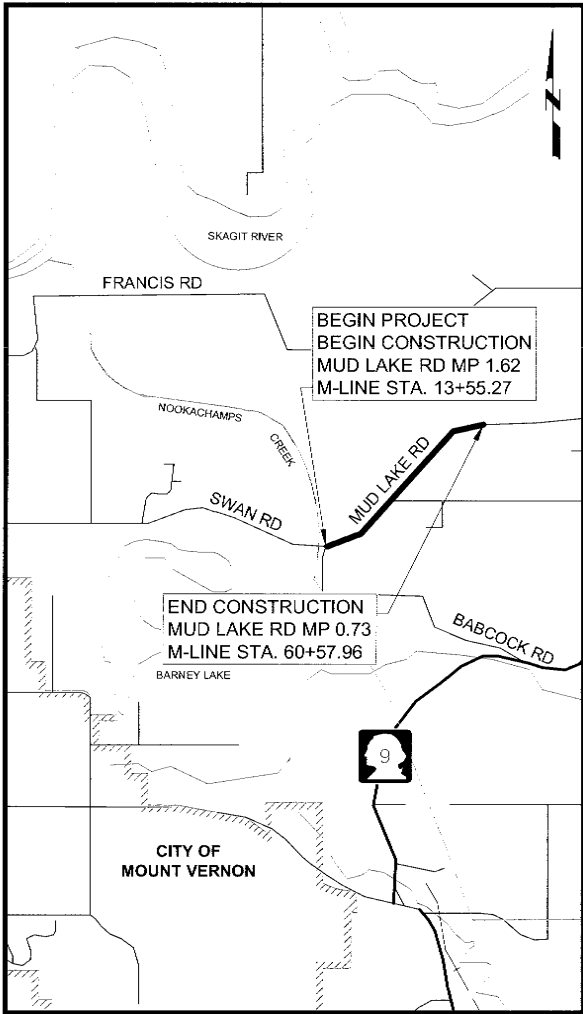
## SKAGIT COUNTY OFFICIALS

BOARD OF COMMISSIONERS

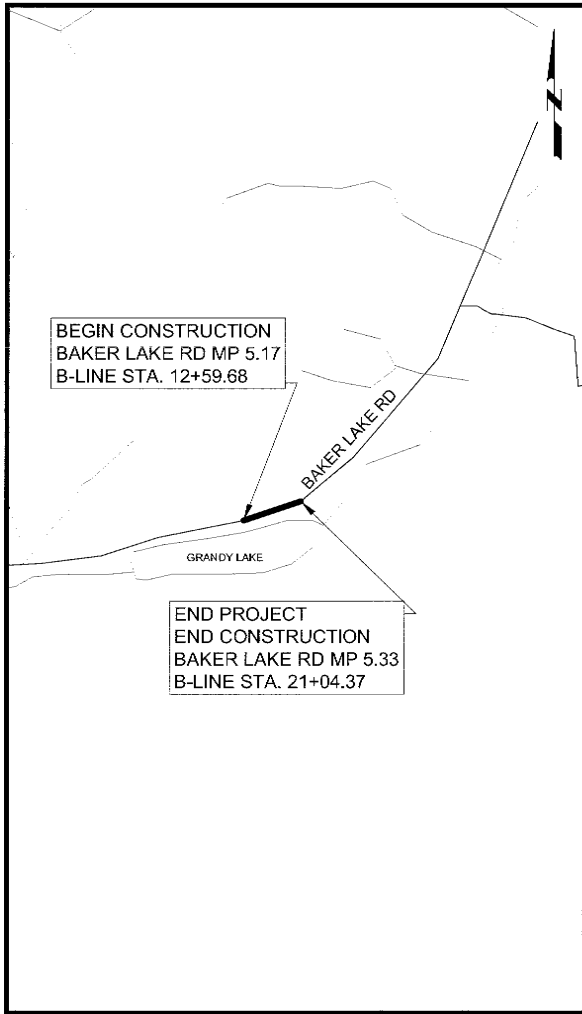
- RON WESEN, CHAIR
- LISA JANICKI, COMMISSIONER
- PETER BROWNING, COMMISSIONER



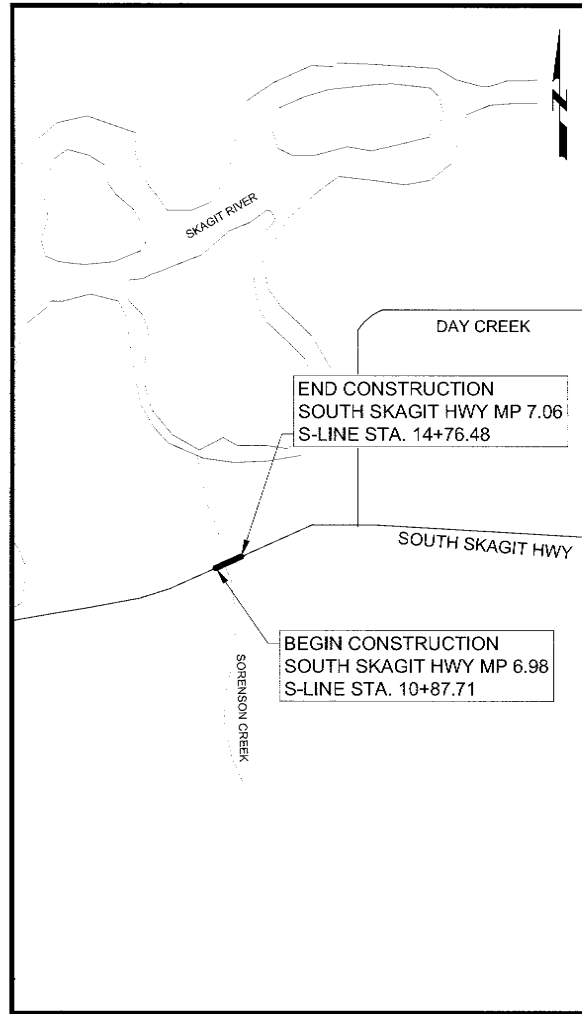
 4/4/2023  
\_\_\_\_\_  
GRACE K. KANE, P.E., PUBLIC WORKS DIRECTOR/COUNTY ENGINEER DATE

**VICINITY MAP** NTS

**SCHEDULE A<sub>NT</sub>**  
**MUD LAKE RD**



**SCHEDULE B** NTS  
**BAKER LAKE RD**



**SCHEDULE C<sub>NTS</sub>**  
**SOUTH SKAGIT HWY**

PLAN SHEET INDEX	
SHEET	TITLE
01	COVER SHEET
02	LEGENDS AND ABBREVIATIONS
03-05	WZTC PLANS
06	DETAILS & NOTES
07	SWPPP ELEMENTS
08-10	MUD LAKE RD PLANS
11	BAKER LAKE RD PLANS
12	SOUTH SKAGIT HWY PLANS

**SURVEY NOTES:**

HORIZONTAL DATUM: NAD83 WASHINGTON  
STATE PLANE NORTH ZONE  
VERTICAL DATUM: NAVD88



Know what's **below**

**Call** before you dig.  
Determina lo que está **bajo tierra**  
**Llama** antes de excavar.

## BARRIER PROTECTION

COVER SHEET

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
01 OF 12

ABBREVIATIONS:

AC	ACRE	MAX	MAXIMUM
AP	ANGLE POINT	MIN	MINIMUM
APPROX	APPROXIMATE	MIC	MONUMENT IN CASE
ASPH	ASPHALT	MON	MONUMENT
AVE	AVENUE	MP	MILE POST
BLDG	BUILDING	MUTCD	MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
BLVD	BOULEVARD	N	NORTH/NORTHING
BVC	BEGIN VERTICAL CURVE	NTS	NOT TO SCALE
CALC	CALCULATED	OD	OUTSIDE DIAMETER
CAT	CATEGORY	OHW	ORDINARY HIGH WATER MARK
CB	CATCH BASIN	PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
CIP	CAST IRON PIPE	PERF	PERFORATED PIPE
CFS	CUBIC FEET PER SECOND	PC	POINT OF CURVATURE
CL & C	CENTERLINE	PI	POINT OF INTERSECTION
CP	CONTROL POINT	PT	POINT OF TANGENCY
CPCP	CORRUGATED POLYETHYLENE CULVERT PIPE	R	RADIUS
CPSSP	CORRUGATED POLYETHYLENE STORM SEWER PIPE	RD	ROAD
CONT'D	CONTINUED	RGE	RANGE
CULV	CULVERT	R/W &	
CY	CUBIC YARD	ROW	RIGHT OF WAY
DEG	DEGREE	RT	RIGHT
DIA	DIAMETER	S	SOUTH
DWG	DRAWING	SEC	SECTION
E	EAST/EASTING	SF	SQUARE FOOT
EL & ELEV	ELEVATION	SHLD	SHOULDER
EST	ESTIMATED	SPEC	SPECIFICATIONS
EVC	END VERTICAL CURVE	ST	STREET
FGR	FACE OF GUARDRAIL	STA	STATION
FT & '	FEET	SY	SQUARE YARD
GALV	GALVANIZED	SYMM	SYMMETRICAL
GND	GROUND	TWN	TOWNSHIP
GR	GUARDRAIL	TYP	TYPICAL
HMA	HOT MIX ASPHALT	UG	UNDERGROUND
HR	HOURL	VCL	VERTICAL CURVE LENGTH
IN & "	INCHES	VPI	VERTICAL POINT INTERSECTION
INV	INVERT	W	WEST
K	CURVE COEFFICIENT	W.M.	WILLAMETTE MERIDIAN
L	LENGTH OF CURVE	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
LF	LINEAR FEET		
LS	LUMP SUM		
LT	LEFT		

LEGEND

	EXISTING ROAD CENTERLINE
	EXISTING EDGE OF SHOULDER
	EXISTING EDGE OF ASPHALT
	PROPOSED GUARDRAIL
	APPROXIMATE COUNTY RIGHT OF WAY
	CLASS "B" SIGN
	TEMPORARY TRAFFIC CONTROL DEVICE
	PROTECTIVE VEHICLE 2/ FLASHING BEACON
	FLAGGER STATION
	EXISTING UTILITY POLE
	EXISTING SIGN
	EXISTING MAILBOX
	MAILBOX CALLOUTS
	EXISTING CULVERT

SUMMARY OF QUANTITIES

Mud Lake Rd

ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
A-1	MOBILIZATION	L.S.	1
A-2	CRUSHED SURFACING BASE COURSE	TON	119
A-3	BEAM GUARDRAIL TYPE 31 - 8 FT. LONG POST	L.F.	1688
A-4	BEAM GUARDRAIL TYPE 31 - 9 FT. LONG POST	L.F.	188
A-5	BEAM GUARDRAIL TYPE 31 - 11 FT. LONG POST	L.F.	767
A-6	BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL	EACH	4
A-7	BEAM GUARDRAIL TYPE 31	L.F.	700
A-8	BEAM GUARDRAIL ANCHOR TYPE 11	EACH	4
A-9	FLEXIBLE GUIDE POST	EACH	36
A-10	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	1
A-11	FLAGGERS	HR	144
A-12	TRAFFIC CONTROL SUPERVISOR	L.S.	1
A-13	TRIMMING AND CLEANUP	L.S.	1
A-14	MINOR CHANGE	CALC	1
A-15	SPCC PLAN	L.S.	1
A-16	MAILBOX SUPPORT TYPE 1	EACH	10
A-17	WORK ZONE SAFETY CONTINGENCY	EST.	1

Baker Lake Rd

ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
B-1	MOBILIZATION	L.S.	1
B-2	CRUSHED SURFACING BASE COURSE	TON	40
B-3	BEAM GUARDRAIL TYPE 31 - 8 FT. LONG POST	L.F.	363
B-4	BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL	EACH	2
B-5	BEAM GUARDRAIL TYPE 31	L.F.	400
B-6	FLEXIBLE GUIDE POST	EACH	8
B-7	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	1
B-8	FLAGGERS	HR	32
B-9	TRAFFIC CONTROL SUPERVISOR	L.S.	1
B-10	TRIMMING AND CLEANUP	L.S.	1
B-11	MINOR CHANGE	CALC	1
B-12	SPCC PLAN	L.S.	1
B-13	WORK ZONE SAFETY CONTINGENCY	EST.	1

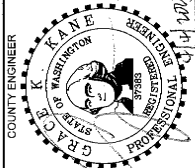
South Skagit HWY

ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
C-1	MOBILIZATION	L.S.	1
C-2	CRUSHED SURFACING BASE COURSE	TON	43
C-3	BEAM GUARDRAIL TYPE 31 - 8 FT. LONG POST	L.F.	300
C-4	BEAM GUARDRAIL TYPE 31 - 9 FT. LONG POST	L.F.	75
C-5	BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL	EACH	6
C-6	FLEXIBLE GUIDE POST	EACH	8
C-7	PROJECT TEMPORARY TRAFFIC CONTROL	L.S.	1
C-8	FLAGGERS	HR	64
C-9	TRAFFIC CONTROL SUPERVISOR	L.S.	1
C-10	TRIMMING AND CLEANUP	L.S.	1
C-11	MINOR CHANGE	CALC	1
C-12	SPCC PLAN	L.S.	1
C-13	MAILBOX SUPPORT TYPE 1	EACH	1
C-14	WORK ZONE SAFETY CONTINGENCY	EST.	1

SKAGIT COUNTY  
PUBLIC WORKS

1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400 FAX (360) 416-1405

NO.	DATE	REVISIONS

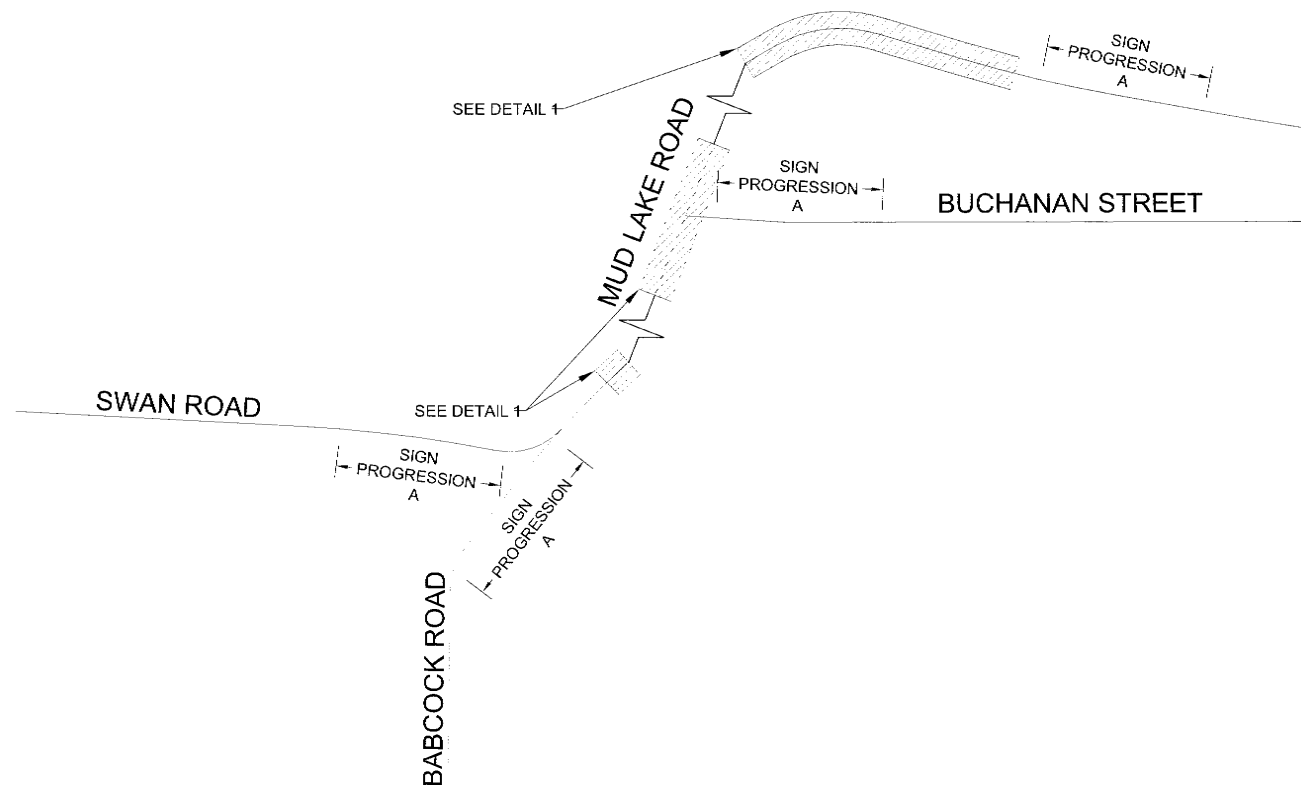


PROJECT NO.: ES78600-1	DESIGNED BY: DJW	PROJECT LOCATED NEAR: CLEAR LAKE, CONCRETE & SEDRO-WOOLLEY, WA SEC 2 & 11 T34N R4E, SEC 23 T34N R4E, & SEC 25 T34N R4E
FED. AID NO.: HSIP-000S(625)	DRAWN BY: DJW	
CHECKED BY: TMW	APPROVED BY: GKK	

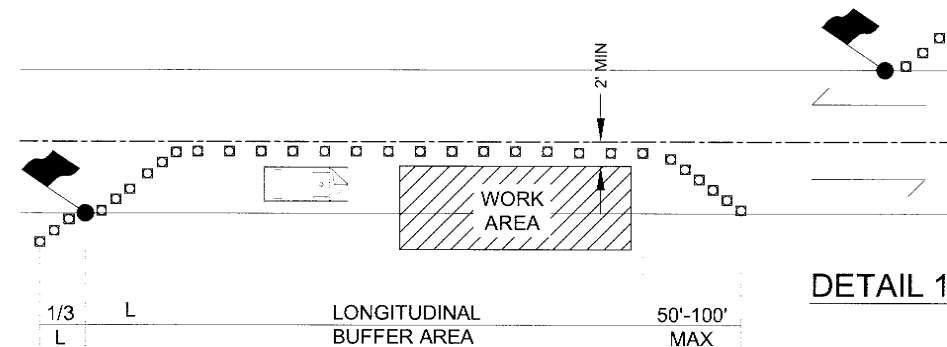
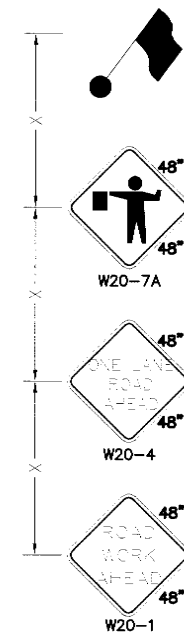
BARRIER PROTECTION

LEGEND, ABBREVIATIONS, & SUMMARY OF  
QUANTITIES

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY



SIGN PROGRESSION A



GENERAL NOTES:

1. ALL SIGNS SHOWN ON TRAFFIC CONTROL PLANS ARE CONSTRUCTION SIGNS CLASS "B" UNLESS OTHERWISE SPECIFIED.
2. ALL SIGNS SHALL HAVE A BLACK LEGEND ON AN ORANGE BACKGROUND UNLESS OTHERWISE SPECIFIED.
3. TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. ALL TAPERS SHALL HAVE A SIX DEVICE MINIMUM
5. WHENEVER A DRIVEWAY IS PRESENT WITHIN THE WORK ZONE, APPROPRIATELY SIGN THE DRIVEWAY AND STATION A FLAGGER NEARBY TO ASSIST DRIVERS ENTERING THE WORK ZONE.

NOTES:

1. THIS TRAFFIC CONTROL PLAN IS FOR DAYLIGHT HOURS ONLY
2. THE CONTRACTOR SHALL PLACE A SET OF THREE TRAFFIC DRUMS IN THE WORK ZONE. AS WORK PROCEEDS AWAY FROM THE MERGING TAPER AN ADDITIONAL SET OF DRUMS WILL BE REQUIRED FOR EVERY 1000' OF CLOSED LANE.

SIGN SPACING = X (FEET)		
FREEWAYS/EXRESSWAYS	55-70 MPH	1500±
RURAL HIGHWAY	60-65 MPH	800±
RURAL ROADS	45-55	500±
RURAL ROADS & URBAN ARTERIALS	35-40 MPH	350±
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25-30 MPH	200±
URBAN STREETS	25 MPH-LESS	100±

BUFFER DATA											
LONGITUDINAL BUFFER SPACE = B											
SPEED (MPH)						25	30	35	40	45	50
LENGTH (FEET)						155	200	250	305	360	425

MINIMUM TAPER LENGTH = L (FEET)											
LANE WIDTH (FEET)	POSTED SPEED LIMIT (MPH)										
	25	30	35	40	45	50	55	60	65	70	
10	105	150	205	270	450	500	550	-	-	-	
11	115	165	225	295	495	550	605	660	-	-	
12	125	180	245	320	540	600	660	720	780	840	

CHANNELIZATION DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50-60	40	80
35-45	30	60
25-30	20	40



SKAGIT COUNTY  
PUBLIC WORKS

1800 CONTINENTAL PLACE  
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(360) 416-1400 FAX (360) 416-1405

DATE

REVISIONS

NO.

ENGINEER OF RECORD

COUNTY ENGINEER

PROJECT NO.: ES78600-1  
FED. AID NO.: HSIP-000(S)(25)  
DESIGNED BY: DJW  
CHECKED BY: TMW  
DRAWN BY: DJW  
APPROVED BY: GKK  
PROJECT LOCATED NEAR:  
CLEAR LAKE, WA  
SEC 2 & 11 T34N R4E

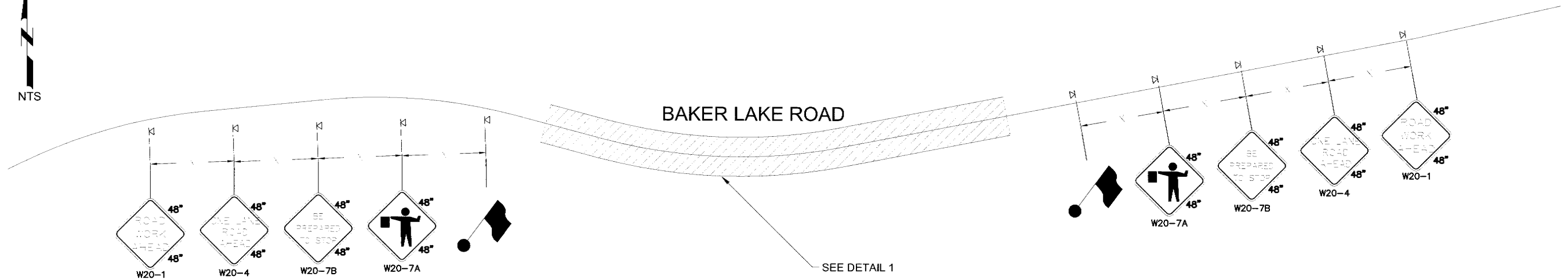
BARRIER PROTECTION

SCHEDULE A WZTC

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
03 OF 12

DWILLARD - February 6, 2023 - 10:18 AM - P:\BARRIER PROTECTION ES78600-1\11 DESIGN\N-CAD\CONTRACT PLANS\100% PS&E\02\_TC\_ES78600-1.DWG



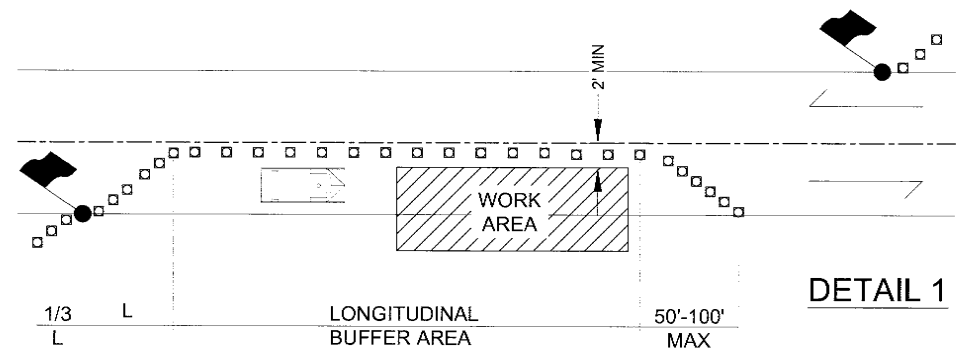
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						55	60	65	70		
						495	570	645	730		

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SKAGIT COUNTY  
PUBLIC WORKS  
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MOUNT VERNON, WA 98273-5625  
(360) 416-1400 FAX (360) 416-1405

DATE

REVISIONS

NO.

ENGINEER OF RECORD  
JOHN M. MILLER  
WASHINGTON STATE PROFESSIONAL ENGINEER  
NO. 1112223

COUNTY ENGINEER  
GRAHAM K. KLINE  
WASHINGTON STATE PROFESSIONAL ENGINEER  
NO. 414203

PROJECT NO.: ES78600-1  
FED. AID NO.: HSIP-000S(625)  
DESIGNED BY: DJW  
CHECKED BY: TMW  
DRAWN BY: DJW  
APPROVED BY: GKK  
PROJECT LOCATED NEAR:  
CONCRETE, WA  
SEC 32 T3GN RBE

BARRIER PROTECTION

SCHEDULE B WZTC

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

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04 OF 12

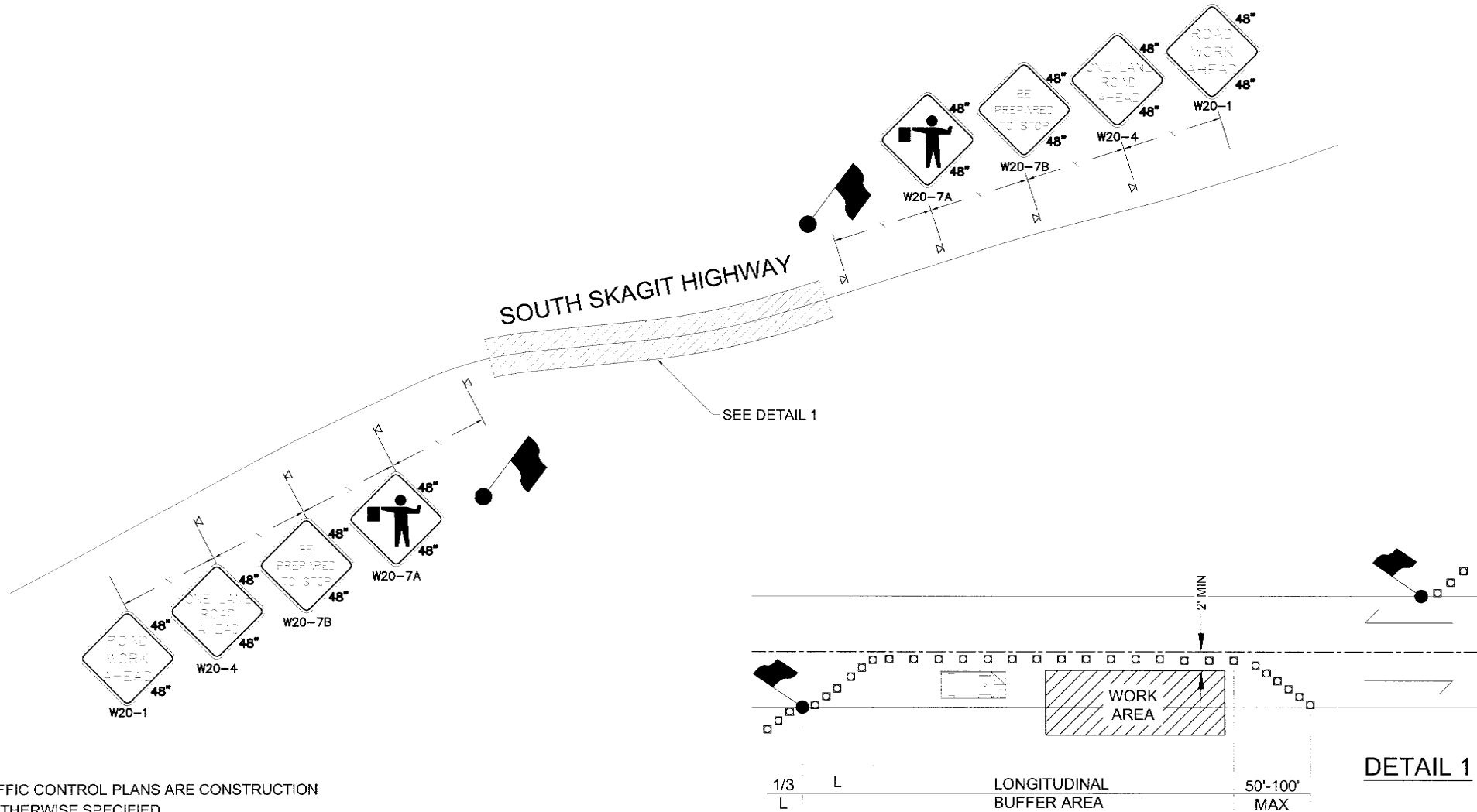
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(360) 416-1400 FAX (360) 416-1405

DATE

REVISIONS

NO.

ENGINEER OF RECORD  
M. W. KELLER  
WASHINGTON  
REGISTERED PROFESSIONAL  
2414023

COUNTY ENGINEER  
K. KANE  
WASHINGTON  
REGISTERED PROFESSIONAL  
2414023

PROJECT NO.: ES78600-1  
FED AID NO.: HSIP-000(S)(625)  
DESIGNED BY: DJW  
CHECKED BY: TMW  
DRAWN BY: DJW  
APPROVED BY: GKK  
PROJECT LOCATED NEAR:  
SEDRO-WOOLLEY, WA  
SEC 25 T39N R9E

BARRIER PROTECTION

SCHEDULE C WZTC

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
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DWILLARD - February 6, 2023 - 10:19 AM - P:\BARRIER PROTECTION ES78600-1\I DESIGN\N-CAD\CONTRACT PLANS\100% FS&E02\_TC\_ES78600-1.DWG

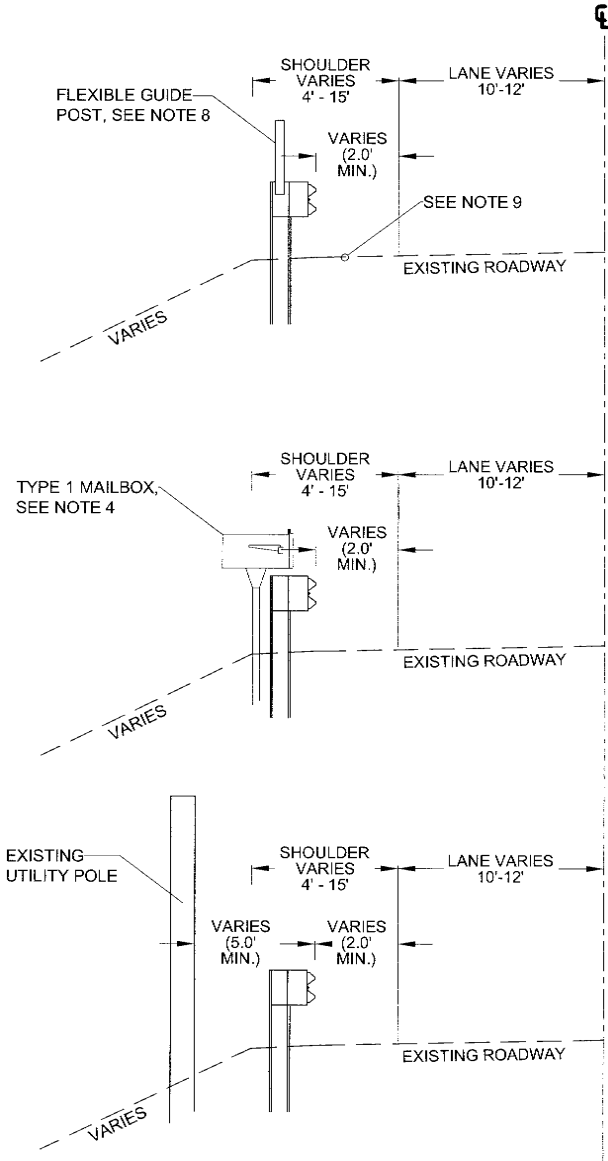
GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE CONTRACT PLANS AND PROVISIONS, WSDOT STANDARD PLANS, MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND THE 2020 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BEFORE DIGGING, CALL 1-800-424-5555 AT LEAST TWO (2) BUSINESS DAYS BEFORE YOU DIG.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXTENT OF ANY HAZARD CREATED BY OVERHEAD ELECTRICAL POWER AND SHALL FOLLOW ANY APPLICABLE PROCEDURES AS REQUIRED BY LAW.
4. THERE WILL NOT BE AN ADJUSTMENT IN UNIT PRICE FOR ANY ITEM DUE TO HAND DIGGING HOLES. ALL BIDDERS SHOULD REVIEW THE SITE BEFORE SUBMITTING A BID PROPOSAL.
5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A COPY OF THESE APPROVED PLANS PRESENT ON THE CONSTRUCTION SITE AT ALL TIMES.
6. THE CONTRACTOR SHALL ATTEND PRE-CONSTRUCTION CONFERENCE WITH SCPW PRIOR TO BEGINNING CONSTRUCTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF EXISTING UTILITIES AT ALL TIMES WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, POWER, TELEPHONE, CABLE TV, AND FIBER.
8. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS 48 HOURS IN ADVANCE OF ANY WORK AFFECTING ACCESS OR SERVICE AND SHALL MINIMIZE INTERRUPTIONS TO DRIVEWAYS FOR PROPERTY OWNERS ADJACENT TO THE PROJECT.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL IN ACCORDANCE WITH THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) INCLUDING THE WASHINGTON STATE MODIFICATIONS TO THE MUTCD PRIOR TO DISRUPTION OF ANY TRAFFIC. THE CONTRACTOR MAY CHOOSE TO ADOPT THE TRAFFIC CONTROL PLANS PROVIDED IN THIS PLAN SET OR SUBMIT AN ALTERNATE TRAFFIC CONTROL PLAN. TRAFFIC CONTROL PLANS MUST BE APPROVED BY SCPW AND WSDOT FOR APPROVAL. THIS APPROVAL TAKES TIME AND NO WORK SHALL COMMENCE UNTIL PLANS ARE APPROVED AND ALL APPROVED TRAFFIC CONTROL IS IN PLACE.
10. PUBLIC RIGHTS-OF-WAY SHALL BE KEPT IN A CLEAN AND SERVICEABLE CONDITION AT ALL TIMES. IN THE EVENT MATERIALS ARE INADVERTENTLY DEPOSITED ON ROADWAYS, THE MATERIAL SHALL BE PROMPTLY REMOVED.
11. ALL LAWN AND VEGETATED AREAS OUTSIDE THE PROJECT LIMITS DISTURBED BY CONSTRUCTION EQUIPMENT, VEHICLES OR PERSONNEL SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER, AT THE CONTRACTOR'S EXPENSE.

CONSTRUCTION NOTES:

1. UTILITY POLES, SIGNS, CULVERTS, AND MAILBOXES SHOWN WERE NOT SURVEYED IN. LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATIONS PRIOR TO BEGINNING CONSTRUCTION.
2. ALIGNMENT IS BASED ON EXISTING PAINTED ROAD CENTERLINE.
3. WHEN IN CONFLICT WITH A CULVERT OR UNDERGROUND UTILITY, SPAN GUARDRAIL PER THE MOST CURRENT VERSION OF WSDOT STANDARD PLAN C20.40.
4. REMOVE AND REPLACE ALL NOTED MAILBOXES ACCORDING TO THE MOST CURRENT VERSION OF WSDOT STANDARD PLAN H70.10 AT THE NOTED STATION.
5. USE CASES 1 AND 3 WHEN THERE IS A 2.5-FOOT TO 4.0-FOOT SHOULDER WIDENING FROM FACE OF GUARDRAIL TO THE BREAKPOINT.
6. USE CASE 2 WHEN THERE IS A 4.0-FOOT OR GREATER SHOULDER WIDENING FROM THE FACE OF GUARDRAIL TO THE BREAKPOINT.
7. USE CASES 4, 5, AND 6 WHEN THERE IS LESS THAN A 2.5-FOOT SHOULDER WIDENING FROM FACE OF GUARDRAIL TO THE BREAKPOINT.
8. SEE STANDARD PLAN M-40.10, FLEXIBLE GUIDE POST GUARDRAIL MOUNT (TYPE WW).
9. CONTRACTOR SHALL DRESS THE SHOULDER USING CRUSHED SURFACING BASE COURSE TO ENSURE A SMOOTH 10:1 GRADE.
10. WHEN INSTALLING POSTS, EXTRA BLOCKS MAY BE REQUIRED, WHICH SHALL BE INCLUDED IN THE UNIT BID PRICE FOR GUARDRAIL INSTALLATION.
11. ALL POSTS SHALL BE DOMESTIC STEEL IN LENGTHS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
12. CONTRACTOR SHALL VERIFY RADIUS PRIOR TO ORDERING MATERIALS.

TYPICAL ROADWAY DETAIL



SKAGIT COUNTY  
PUBLIC WORKS  
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PROJECT NO.: ES78600-1  
FED. AID NO.: HSP-000(S)(25)  
DESIGNED BY: DJW  
DRAWN BY: DJW  
CHECKED BY: TMW  
APPROVED BY: GKK  
PROJECT LOCATED NEAR:  
CLEAR LAKE, CONCRETE & SEDRO-WOOLLEY, WA  
SEC 2 & 11 T14N R4E, SEC 32 T38N R4E, & SEC 25 T39N R5E

BARRIER PROTECTION

DETAILS AND NOTES

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
06 OF 12

CONSTRUCTION STORMWATER POLLUTION PREVENTION (SWPPP) ELEMENTS:

ELEMENT 1 - PRESERVE VEGETATION/MARK CLEARING LIMITS

- a. BEFORE BEGINNING LAND-DISTURBING ACTIVITIES, INCLUDING CLEARING AND GRADING, CLEARLY MARK ALL CLEARING LIMITS, SENSITIVE AREAS AND THEIR BUFFERS, AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA.
- b. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM DEGREE PRACTICABLE.

ELEMENT 2 - ESTABLISH CONSTRUCTION ACCESS

- a. LIMIT CONSTRUCTION VEHICLE ACCESS AND EXIT TO ONE ROUTE, IF POSSIBLE.
- b. STABILIZE ACCESS POINTS WITH A PAD OF QUARRY SPALLS, CRUSHED ROCK, OR OTHER EQUIVALENT BMPS, TO MINIMIZE TRACKING SEDIMENT ONTO PUBLIC ROADS.
- c. LOCATE WHEEL WASH OR TIRE BATHS ON SITE. IF THE STABILIZED CONSTRUCTION ENTRANCE IS NOT EFFECTIVE IN PREVENTING TRACKING SEDIMENT ONTO PUBLIC ROADS.
- d. IF SEDIMENT IS TRACKED OFF SITE, CLEAN THE AFFECTED ROADWAY THOROUGHLY AT THE END OF EACH DAY, OR MORE FREQUENTLY AS NECESSARY (FOR EXAMPLE, DURING WET WEATHER). REMOVE SEDIMENT FROM ROADS BY SHOVELING, SWEEPING, OR PICKUP AND TRANSPORT OF THE SEDIMENT TO A CONTROLLED SEDIMENT DISPOSAL AREA.
- e. CONDUCT STREET WASHING ONLY AFTER SEDIMENT REMOVAL IN ACCORDANCE WITH 2.d ABOVE.
- f. CONTROL STREET WASH WASTEWATER BY PUMPING BACK ON SITE OR OTHERWISE PREVENTING IT FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.

ELEMENT 3 - CONTROL FLOW RATES

- a. PROTECT PROPERTIES AND WATERWAYS DOWNSTREAM OF DEVELOPMENT SITES FROM EROSION AND THE ASSOCIATED DISCHARGE OF TURBID WATERS DUE TO INCREASES IN THE VELOCITY AND PEAK VOLUMETRIC FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE, AS REQUIRED BY LOCAL PLAN APPROVAL AUTHORITY.
- b. WHERE NECESSARY TO COMPLY WITH 3.a (ABOVE), CONSTRUCT STORMWATER INFILTRATION OR DETENTION BMPS AS ONE OF THE FIRST STEPS IN GRADING. ASSURE THAT DETENTION BMPS FUNCTION PROPERLY BEFORE CONSTRUCTING SITE IMPROVEMENTS (E.G., IMPERVIOUS SURFACES).
- c. IF PERMANENT INFILTRATION PONDS ARE USED FOR FLOW CONTROL DURING CONSTRUCTION, PROTECT THESE FACILITIES FROM SILTATION DURING THE CONSTRUCTION PHASE.

ELEMENT 4 - INSTALL SEDIMENT CONTROLS

THE PERMITTEE MUST DESIGN, INSTALL AND MAINTAIN EFFECTIVE EROSION CONTROLS AND SEDIMENT CONTROLS TO MINIMIZE THE DISCHARGE OF POLLUTANTS. AT A MINIMUM, THE PERMITTEE MUST DESIGN, INSTALL AND MAINTAIN SUCH CONTROLS TO:

- a. CONSTRUCT SEDIMENT CONTROL BMPS (SEDIMENT PONDS, TRAPS, FILTERS, INFILTRATION FACILITIES, ETC.) AS ONE OF THE FIRST STEPS IN GRADING. THESE BMPS MUST BE FUNCTIONAL BEFORE OTHER LAND DISTURBING ACTIVITIES TAKE PLACE.
- b. MINIMIZE SEDIMENT DISCHARGES FROM THE SITE. THE DESIGN, INSTALLATION, AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS MUST ADDRESS FACTORS SUCH AS THE AMOUNT, FREQUENCY, INTENSITY AND DURATION OF PRECIPITATION, THE NATURE OF RESULTING STORMWATER RUNOFF, AND SOIL CHARACTERISTICS, INCLUDING THE RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT ON THE SITE.
- c. DIRECT STORMWATER RUNOFF FROM DISTURBED AREAS THROUGH A SEDIMENT POND OR OTHER APPROPRIATE SEDIMENT REMOVAL BMP BEFORE THE RUNOFF LEAVES A CONSTRUCTION SITE OR BEFORE DISCHARGE TO AN INFILTRATION FACILITY. RUNOFF FROM FULLY STABILIZED AREAS MAY BE DISCHARGED WITHOUT A SEDIMENT REMOVAL BMP BUT MUST CONTROL FLOW RATES PER ELEMENT 3: CONTROL FLOW RATES.
- d. LOCATE BMPS INTENDED TO TRAP SEDIMENT ON SITE IN A MANNER TO AVOID INTERFERENCE WITH THE MOVEMENT OF JUVENILE SALMONIDS ATTEMPTING TO ENTER OFF-CHANNEL AREAS OR DRAINAGES.
- e. PROVIDE AND MAINTAIN NATURAL BUFFERS AROUND SURFACE WATERS, DIRECT STORMWATER TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION, UNLESS INFEASIBLE.
- f. WHERE FEASIBLE, DESIGN OUTLET STRUCTURES THAT WITHDRAW IMPOUNDED STORMWATER FROM THE SURFACE TO AVOID DISCHARGING SEDIMENT THAT IS STILL SUSPENDED LOWER IN THE WATER COLUMN.

ELEMENT 5 - STABILIZE SOILS

- a. THE PERMITTEE MUST STABILIZE EXPOSED AND UNWORKED SOILS BY APPLICATION OF EFFECTIVE BMPS THAT PREVENT EROSION. APPLICABLE BMPS INCLUDE BUT ARE NOT LIMITED TO: TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EROSION CONTROL FABRICS AND MATTING, SOIL APPLICATION OF POLYACRYLAMIDE (PAM), THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED, AND DUST CONTROL.
- b. THE PERMITTEE MUST CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION.
- c. THE PERMITTEE MUST CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND TO MINIMIZE DOWNSTREAM CHANNEL AND STREAM BANK EROSION.
- d. DEPENDING ON THE GEOGRAPHIC LOCATION OF THE PROJECT, THE PERMITTEE MUST NOT ALLOW SOILS TO REMAIN EXPOSED AND UNWORKED FOR MORE THAN THE TIME PERIODS SET FORTH BELOW TO PREVENT EROSION:
  - WEST OF THE CASCADE MOUNTAINS CREST DURING THE DRY SEASON (MAY 1 - SEPTEMBER 30): 7 DAYS DURING THE WET SEASON (OCTOBER 1 - APRIL 30): 2 DAYS
  - EAST OF THE CASCADE MOUNTAINS CREST, EXCEPT FOR CENTRAL BASIN\* DURING THE DRY SEASON (JULY 1 - SEPTEMBER 30): 10 DAYS DURING THE WET SEASON (OCTOBER 1 - JUNE 30): 5 DAYS
  - THE CENTRAL BASIN\*, EAST OF THE CASCADE MOUNTAINS CREST DURING THE DRY SEASON (JULY 1 - SEPTEMBER 30): 30 DAYS DURING THE WET SEASON (OCTOBER 1 - JUNE 30): 15 DAYS \*\*NOTE\*\* THE CENTRAL BASIN IS DEFINED AS THE PORTIONS OF EASTERN WASHINGTON WITH MEAN ANNUAL PRECIPITATION OF FEWER THAN 12 INCHES.
- e. THE PERMITTEE MUST STABILIZE SOILS AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST.
- f. THE PERMITTEE MUST STABILIZE SOIL STOCKPILES FROM EROSION, PROTECTED WITH SEDIMENT TRAPPING MEASURES, AND WHERE POSSIBLE, BE LOCATED AWAY FROM STORM DRAIN INLETS, WATERWAYS, AND DRAINAGE CHANNELS.
- g. THE PERMITTEE MUST MINIMIZE THE AMOUNT OF SOIL EXPOSED DURING CONSTRUCTION ACTIVITY.
- h. THE PERMITTEE MUST MINIMIZE THE DISTURBANCE OF STEEP SLOPES.
- i. THE PERMITTEE MUST MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

ELEMENT 6 - PROTECT SLOPES

- a. THE PERMITTEE MUST DESIGN AND CONSTRUCT CUT-AND-FILL SLOPES IN A MANNER TO MINIMIZE EROSION. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, REDUCING CONTINUOUS LENGTH OF SLOPE WITH TERRACING AND DIVERSIONS, REDUCING SLOPE STEEPNESS, AND ROUGHENING SLOPE SURFACES (FOR EXAMPLE, TRACK WALKING).
  - b. THE PERMITTEE MUST DIVERT OFF-SITE STORMWATER (RUN-ON) OR GROUNDWATER AWAY FROM SLOPES AND DISTURBED AREAS WITH INTERCEPTOR DIKES, PIPES, AND/OR SWALES. OFF-SITE STORMWATER SHOULD BE MANAGED SEPARATELY FROM STORMWATER GENERATED ON THE SITE.
  - c. AT THE TOP OF SLOPES, COLLECT DRAINAGE IN PIPE SLOPE DRAINS OR PROTECTED CHANNELS TO PREVENT EROSION.
    - i. WEST OF THE CASCADE MOUNTAINS CREST: TEMPORARY PIPE SLOPE DRAINS MUST HANDLE THE PEAK 10-MINUTE FLOW RATE FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM FOR THE DEVELOPED CONDITION. ALTERNATIVELY, THE 10-YEAR, 1-HOUR FLOW RATE PREDICTED BY AN APPROVED CONTINUOUS RUNOFF MODEL, INCREASED BY A FACTOR OF 1.6, MAY BE USED. THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDROLOGY MODEL (WWHM) TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED AREA."
    - ii. EAST OF THE CASCADE MOUNTAINS CREST: TEMPORARY PIPE SLOPE DRAINS MUST HANDLE THE EXPECTED PEAK FLOW RATE FROM A 6-MONTH, 3-HOUR STORM FOR THE DEVELOPED CONDITION, REFERRED TO AS THE SHORT DURATION STORM.
  - i. PLACE EXCAVATED MATERIAL ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.
  - j. PLACE CHECK DAMS AT REGULAR INTERVALS WITHIN CONSTRUCTED CHANNELS THAT ARE CUT DOWN A SLOPE.
- ELEMENT 7 - PROTECT DRAIN INLETS

- a. PROTECT ALL STORM DRAIN INLETS MADE OPERABLE DURING CONSTRUCTION SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT.
- b. CLEAN OR REMOVE AND REPLACE INLET PROTECTION DEVICES WHEN SEDIMENT HAS FILLED ONE-THIRD OF THE AVAILABLE STORAGE (UNLESS A DIFFERENT STANDARD IS SPECIFIED BY THE PRODUCT MANUFACTURER).

ELEMENT 8 - STABILIZE CHANNELS AND OUTLETS

- a. DESIGN, CONSTRUCT, AND STABILIZE ALL ON-SITE CONVEYANCE CHANNELS TO PREVENT EROSION FROM THE FOLLOWING EXPECTED PEAK FLOWS:
  - i. WEST OF THE CASCADE MOUNTAINS CREST: CHANNELS MUST HANDLE THE PEAK 10-MINUTE FLOW RATE FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM FOR THE DEVELOPED CONDITION. ALTERNATIVELY, THE 10-YEAR, 1-HOUR FLOW RATE INDICATED BY AN APPROVED CONTINUOUS RUNOFF MODEL, INCREASED BY A FACTOR OF 1.6, MAY BE USED. THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WWHM TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED AREA."
  - ii. EAST OF THE CASCADE MOUNTAINS CREST: CHANNELS MUST HANDLE THE EXPECTED PEAK FLOW RATE FROM A 6-MONTH, 3-HOUR STORM FOR THE DEVELOPED CONDITION, REFERRED TO AS THE SHORT DURATION STORM.
- b. PROVIDE STABILIZATION, INCLUDING ARMORING MATERIAL, ADEQUATE TO PREVENT EROSION OF OUTLETS, ADJACENT STREAM BANKS, SLOPES, AND DOWNSTREAM REACHES AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.

ELEMENT 9 - CONTROL POLLUTANTS

- DESIGN, INSTALL, IMPLEMENT, AND MAINTAIN EFFECTIVE POLLUTION PREVENTION MEASURES TO MINIMIZE THE DISCHARGE OF POLLUTANTS. THE PERMITTEE MUST:
  - a. HANDLE AND DISPOSE OF ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS THAT OCCUR ON SITE IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER.
  - b. PROVIDE COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND OTHER MATERIALS THAT HAVE THE POTENTIAL TO POSE A THREAT TO HUMAN HEALTH OR THE ENVIRONMENT. ON-SITE FUELING TANKS MUST INCLUDE SECONDARY CONTAINMENT. SECONDARY CONTAINMENT MEANS PLACING TANKS OR CONTAINERS WITHIN AN IMPERVIOUS STRUCTURE CAPABLE OF CONTAINING 110% OF THE VOLUME CONTAINED IN THE LARGEST TANK WITHIN THE CONTAINMENT STRUCTURE. DOUBLE-WALLED TANKS DO NOT REQUIRE ADDITIONAL SECONDARY CONTAINMENT.
  - c. CONDUCT MAINTENANCE, FUELING, AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES USING SPILL PREVENTION AND CONTROL MEASURES. CLEAN CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY SPILL INCIDENT.
  - d. DISCHARGE WHEEL WASH OR TIRE BATH WASTEWATER TO A SEPARATE ON-SITE TREATMENT SYSTEM THAT PREVENTS DISCHARGE TO SURFACE WATER, SUCH AS CLOSED-LOOP RECIRCULATION OR UPLAND LAND APPLICATION, OR TO THE SANITARY SEWER WITH LOCAL SEWER DISTRICT APPROVAL.
  - e. APPLY FERTILIZERS AND PESTICIDES IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO STORMWATER RUNOFF. FOLLOW MANUFACTURERS' LABEL REQUIREMENTS FOR APPLICATION RATES AND PROCEDURES.
  - f. USE BMPS TO PREVENT CONTAMINATION OF STORMWATER RUNOFF BY pH-MODIFYING SOURCES. THE SOURCES FOR THIS CONTAMINATION INCLUDE, BUT ARE NOT LIMITED TO: BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, RECYCLED CONCRETE STOCKPILES, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, DEWATERING CONCRETE VAULTS, CONCRETE PUMPING, AND MIXER WASHOUT WATERS.
  - g. ADJUST THE pH OF STORMWATER OR AUTHORIZED NON-STORMWATER IF NECESSARY TO PREVENT AN EXCEEDANCE OF GROUNDWATER AND/OR SURFACE WATER QUALITY STANDARDS.
  - h. ASSURE THAT WASHOUT OF CONCRETE TRUCKS IS PERFORMED OFF-SITE OR IN DESIGNATED CONCRETE WASHOUT AREAS ONLY. DO NOT WASH OUT CONCRETE TRUCK DRUMS OR CONCRETE HANDLING EQUIPMENT ONTO THE GROUND, OR INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. WASHOUT OF CONCRETE HANDLING EQUIPMENT MAY BE DISPOSED OF IN A DESIGNATED CONCRETE WASHOUT AREA OR IN A FORMED AREA AWAITING CONCRETE WHERE IT WILL NOT CONTAMINATE SURFACE OR GROUNDWATER. DO NOT DUMP EXCESS CONCRETE ON SITE, EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. CONCRETE SPILLAGE OR CONCRETE DISCHARGE DIRECTLY TO GROUNDWATER OR SURFACE WATERS OF THE STATE IS PROHIBITED. DO NOT WASH OUT TO FORMED AREAS AWAITING LID FACILITIES.
  - i. OBTAIN WRITTEN APPROVAL FROM ECOLOGY BEFORE USING ANY CHEMICAL TREATMENT, EXCEPT FOR CO2, DRY ICE, OR FOOD GRADE VINEGAR TO ADJUST pH.
  - j. UNCONTAMINATED WATER FROM WATER-ONLY BASED SHAFT DRILLING FOR CONSTRUCTION OF BUILDING, ROAD, AND BRIDGE FOUNDATIONS MAY BE INFLTRATED PROVIDED THE WASTEWATER IS MANAGED IN A WAY THAT PROHIBITS DISCHARGE TO SURFACE WATERS. PRIOR TO INFILTRATION, WATER FROM WATER-ONLY BASED SHAFT DRILLING THAT COMES INTO CONTACT WITH CURING CONCRETE MUST BE NEUTRALIZED UNTIL pH IS IN THE RANGE OF 6.5 TO 8.5 (SU).

ELEMENT 10 - CONTROL DEWATERING

- j. PERMITTEES MUST DISCHARGE FOUNDATION, VAULT, AND TRENCH DEWATERING WATER, WHICH HAVE CHARACTERISTICS SIMILAR TO STORMWATER RUNOFF AT THE SITE, INTO A CONTROLLED CONVEYANCE SYSTEM BEFORE DISCHARGE TO A SEDIMENT TRAP OR SEDIMENT POND.
- k. PERMITTEES MAY DISCHARGE CLEAN, NON-TURBID DEWATERING WATER, SUCH AS WELL-POINT GROUNDWATER, TO SYSTEMS TRIBUTARY TO, OR DIRECTLY INTO SURFACE WATERS OF THE STATE, AS SPECIFIED IN ELEMENT 8: STABILIZE CHANNELS AND OUTLETS, PROVIDED THE DEWATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. DO NOT ROUTE CLEAN DEWATERING WATER THROUGH STORMWATER SEDIMENT PONDS. NOTE THAT "SURFACE WATERS OF THE STATE" MAY EXIST ON A CONSTRUCTION SITE AS WELL AS OFF SITE, FOR EXAMPLE, A CREEK RUNNING THROUGH A SITE.
- l. OTHER DEWATERING TREATMENT OR DISPOSAL OPTIONS MAY INCLUDE:
  - i. INFILTRATION
  - ii. TRANSPORT OFF SITE IN A VEHICLE, SUCH AS A VACUUM FLUSH TRUCK, FOR LEGAL DISPOSAL IN A MANNER THAT DOES NOT POLLUTE STATE WATERS.
  - iii. ECOLOGY-APPROVED ON-SITE CHEMICAL TREATMENT OR OTHER SUITABLE TREATMENT TECHNOLOGIES.
  - iv. SANITARY OR COMBINED SEWER DISCHARGE WITH LOCAL SEWER DISTRICT APPROVAL, IF THERE IS NO OTHER OPTION.
  - v. USE OF A SEDIMENTATION BAG WITH DISCHARGE TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING.
  - vi. PERMITTEES MUST HANDLE HIGHLY TURBID OR CONTAMINATED DEWATERING WATER SEPARATELY FROM STORMWATER.

ELEMENT 11 - MAINTAIN BMPS

- a. PERMITTEES MUST MAINTAIN AND REPAIR ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION IN ACCORDANCE WITH BMP SPECIFICATIONS.
- b. PERMITTEES MUST REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS WITHIN 30 DAYS AFTER ACHIEVING FINAL SITE STABILIZATION OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED.

ELEMENT 12 - MANAGE THE PROJECT

- a. PHASE DEVELOPMENT PROJECTS TO THE MAXIMUM DEGREE PRACTICABLE AND TAKE INTO ACCOUNT SEASONAL WORK LIMITATIONS.
- b. INSPECTION AND MONITORING - INSPECT, MAINTAIN AND REPAIR ALL BMPS AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. PROJECTS REGULATED UNDER THE CONSTRUCTION STORMWATER GENERAL PERMIT (CSWGP) MUST CONDUCT SITE INSPECTIONS AND MONITORING IN ACCORDANCE WITH SPECIAL CONDITION S4 OF THE CSWGP.
- c. MAINTAINING AN UPDATED CONSTRUCTION SWPPP.

ELEMENT 13 - PROTECT LOW IMPACT DEVELOPMENT (LID) BMPS

- a. THE PRIMARY PURPOSE OF LID BMPS/ON-SITE LID STORMWATER MANAGEMENT BMPS IS TO REDUCE THE DISRUPTION OF THE NATURAL SITE HYDROLOGY. LID BMPS ARE PERMANENT FACILITIES.
- b. PERMITTEES MUST PROTECT ALL BIORETENTION AND RAIN GARDEN FACILITIES FROM SEDIMENTATION THROUGH INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL BMPS ON PORTIONS OF THE SITE THAT DRAIN INTO THE BIORETENTION AND/OR RAIN GARDEN FACILITIES. RESTORE THE FACILITIES TO THEIR FULLY FUNCTIONING CONDITION IF THEY ACCUMULATE SEDIMENT DURING CONSTRUCTION. RESTORING THE FACILITY MUST INCLUDE REMOVAL OF SEDIMENT AND ANY SEDIMENT-LADEN BIORETENTION/RAIN GARDEN SOILS, AND REPLACING THE REMOVED SOILS WITH SOILS MEETING THE DESIGN SPECIFICATION.
- c. PERMITTEES MUST MAINTAIN THE INFILTRATION CAPABILITIES OF BIORETENTION AND RAIN GARDEN FACILITIES BY PROTECTING AGAINST COMPACTION BY CONSTRUCTION EQUIPMENT AND FOOT TRAFFIC. PROTECT COMPLETE LAWN AND LANDSCAPED AREAS FROM COMPACTION DUE TO CONSTRUCTION EQUIPMENT.
- d. PERMITTEES MUST CONTROL EROSION AND AVOID INTRODUCING SEDIMENT FROM SURROUNDING LAND USES ONTO PERMEABLE PAVEMENTS. DO NOT ALLOW MUDDY CONSTRUCTION EQUIPMENT ON THE BASE MATERIAL OR PAVEMENT. DO NOT ALLOW SEDIMENT-LADEN RUNOFF ONTO PERMEABLE PAVEMENTS.
- e. PERMITTEES MUST CLEAN PERMEABLE PAVEMENTS FOULED WITH SEDIMENTS OR NO LONGER PASSING AN INITIAL INFILTRATION TEST USING LOCAL STORMWATER MANUAL METHODOLOGY OR THE MANUFACTURER'S PROCEDURES.
- f. PERMITTEES MUST KEEP ALL HEAVY EQUIPMENT OFF EXISTING SOILS UNDER LID FACILITIES THAT HAVE BEEN EXCAVATED TO FINAL GRADE TO RETAIN THE INFILTRATION RATE OF THE SOILS.

SKAGIT COUNTY  
PUBLIC WORKS  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-6625  
(360) 416-1400 FAX (360) 416-1405

DATE

REVISIONS

NO.

ENGINEER OF RECORD

COUNTY ENGINEER

PROJECT NO.: ES78600-1  
FED AID NO.: HSP-000(S)(25)

DESIGNED BY: DJW

CHECKED BY: TMW

DRAWN BY: DJW

APPROVED BY: GKK

PROJECT LOCATED NEAR:

CLEAR LAKE, CONCRETE, & SEDRO-WOOLLEY, WA  
SEC 2 & 11 TOWN R4E, SEC 32 T39N R4E, & SEC 25 T39N R4E

BARRIER PROTECTION

SWPPP ELEMENTS

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET

07 OF 12

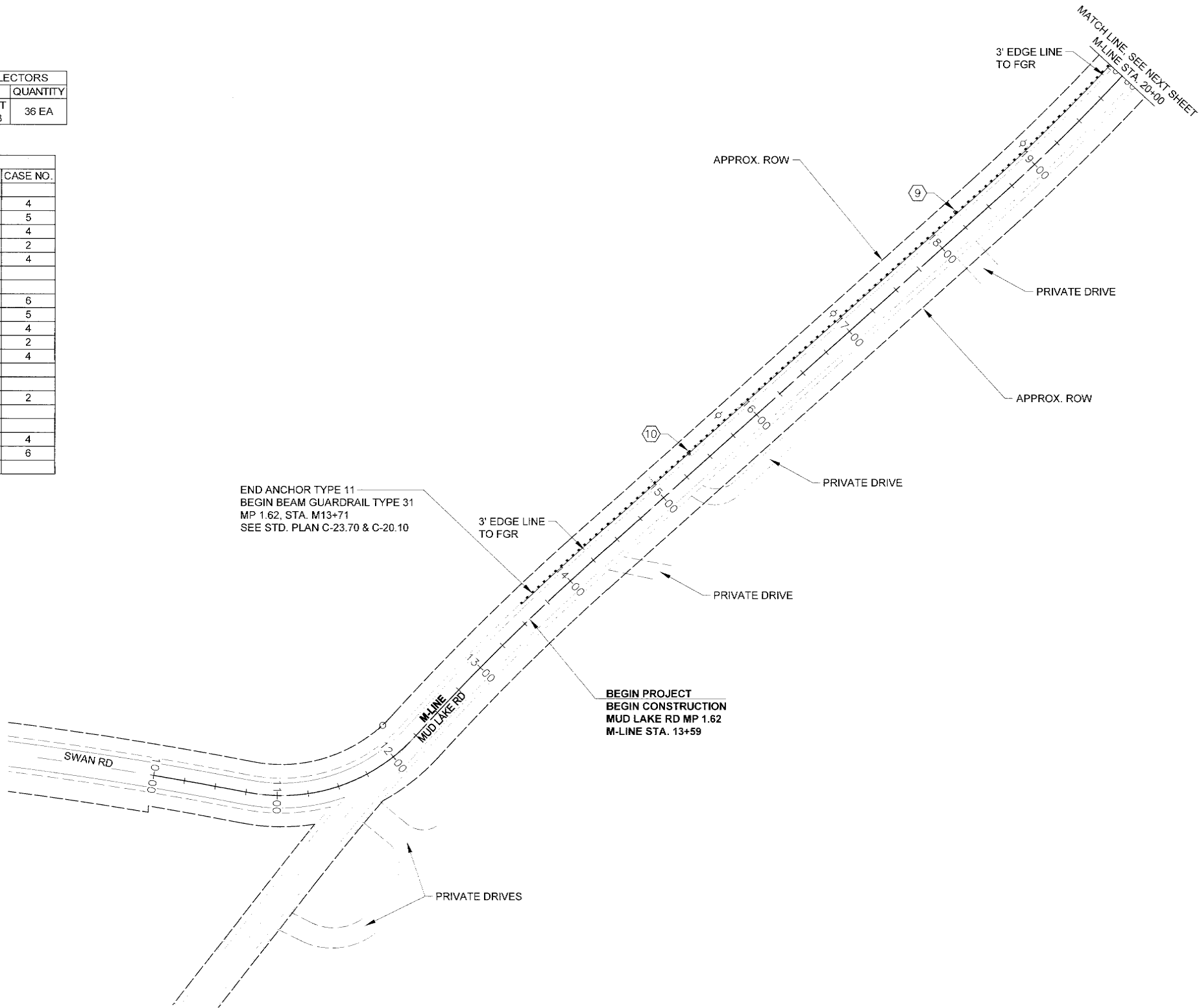
MUD LAKE RD MP 0.73-1.62  
SCHEDULE A

SCHEDULE A GUARDRAIL	
TYPE	QUANTITY
BEAM GUARDRAIL TYPE 31 6', 8', 9', 11' POST STD. PLAN C-20.10-06	3338 LF

SCHEDULE A REFLECTORS	
TYPE	QUANTITY
FLEXIBLE GUIDE POST STD PLAN M-40.10-03	36 EA

SCHEDULE A GUARDRAIL CASES				
DESCRIPTION	BEGIN STA.	END STA.	POST LENGTH	CASE NO.
TYPE 11 ANCHOR		M13+71		
TYPE 31 BEAM GUARDRAIL	M13+71	M25+50	8	4
TYPE 31 BEAM GUARDRAIL	M25+50	M26+75	9	5
TYPE 31 BEAM GUARDRAIL	M26+75	M27+75	8	4
TYPE 31 BEAM GUARDRAIL	M27+75	M30+50	6	2
TYPE 31 BEAM GUARDRAIL	M30+50	M31+02	8	4
TL-2 TERMINAL	M31+02			
TYPE 11 ANCHOR		M31+79		
TYPE 31 BEAM GUARDRAIL	M31+79	M35+30	11	6
TYPE 31 BEAM GUARDRAIL	M35+30	M35+85	9	5
TYPE 31 BEAM GUARDRAIL	M35+85	M37+75	8	4
TYPE 31 BEAM GUARDRAIL	M37+75	M39+70	6	2
TYPE 31 BEAM GUARDRAIL	M39+70	M40+20	8	4
TL-2 TERMINAL	M40+20			
TYPE 11 ANCHOR		M41+12		
TYPE 31 BEAM GUARDRAIL	M41+12	M43+35	6	2
TL-2 TERMINAL	M43+35			
TYPE 11 ANCHOR		M55+95		
TYPE 31 BEAM GUARDRAIL	M55+95	M57+00	8	4
TYPE 31 BEAM GUARDRAIL	M57+00	M61+15	11	6
TL-2 TERMINAL	M61+15			

MAILBOX SCHEDULE			
NO.	ADDRESS	EX. STA.	NEW STA.
1	22926	M58+74	M58+74
2	22902	M56+79	M56+79
3	22906	M56+76	M56+76
4	22734	M42+18	M42+18
5	22524	M31+01	M31+01
6	22430	M24+34	M24+34
7	22416	M23+08	M23+08
8	22382	M20+74	M20+74
9	22350	M18+27	M18+27
10	22308	M15+39	M15+39

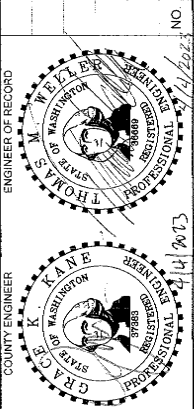


END ANCHOR TYPE 11  
BEGIN BEAM GUARDRAIL TYPE 31  
MP 1.62, STA. M13+71  
SEE STD. PLAN C-23.70 & C-20.10

BEGIN PROJECT  
BEGIN CONSTRUCTION  
MUD LAKE RD MP 1.62  
M-LINE STA. 13+59

SKAGIT COUNTY  
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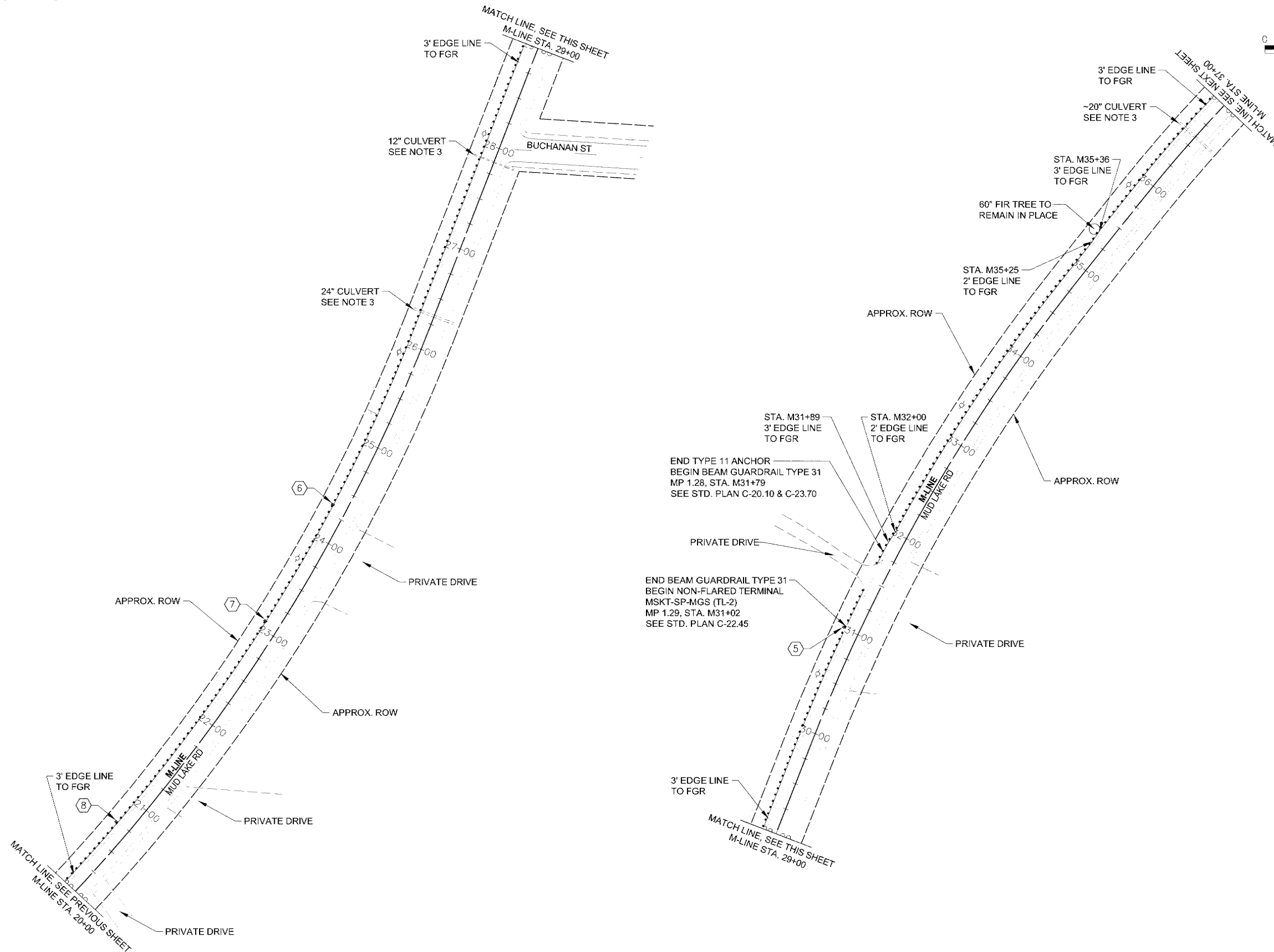
DATE	REVISIONS



PROJECT NO.: ES78600-1	DESIGNED BY: DW	DRAWN BY: DW
FED. AID NO.: HSP-0005(625)	CHECKED BY: TMW	APPROVED BY: GKK
PROJECT LOCATED NEAR: CLEAR LAKE, WA SEC 2 & 11 T34N R4E		

BARRIER PROTECTION  
SCHEDULE A - MUD LAKE RD MP 0.73-0.82 & 1.05-1.62

**MUD LAKE RD MP 0.73-1.62**  
**SCHEDULE A**



**SKAGIT COUNTY  
PUBLIC WORKS**  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
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[illegible]

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PROJECT NO.: ES78600-1  
FED. AID NO.: HSP-000S(625)  
DESIGNED BY: DJW  
CHECKED BY: TMW  
DRAWN BY: DJW  
APPROVED BY: GKK  
PROJECT LOCATED NEAR:  
CLEAR LAKE, WA  
SEC 2 & 11 T34N R4E

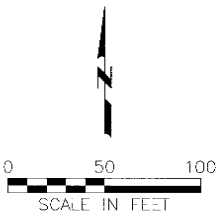
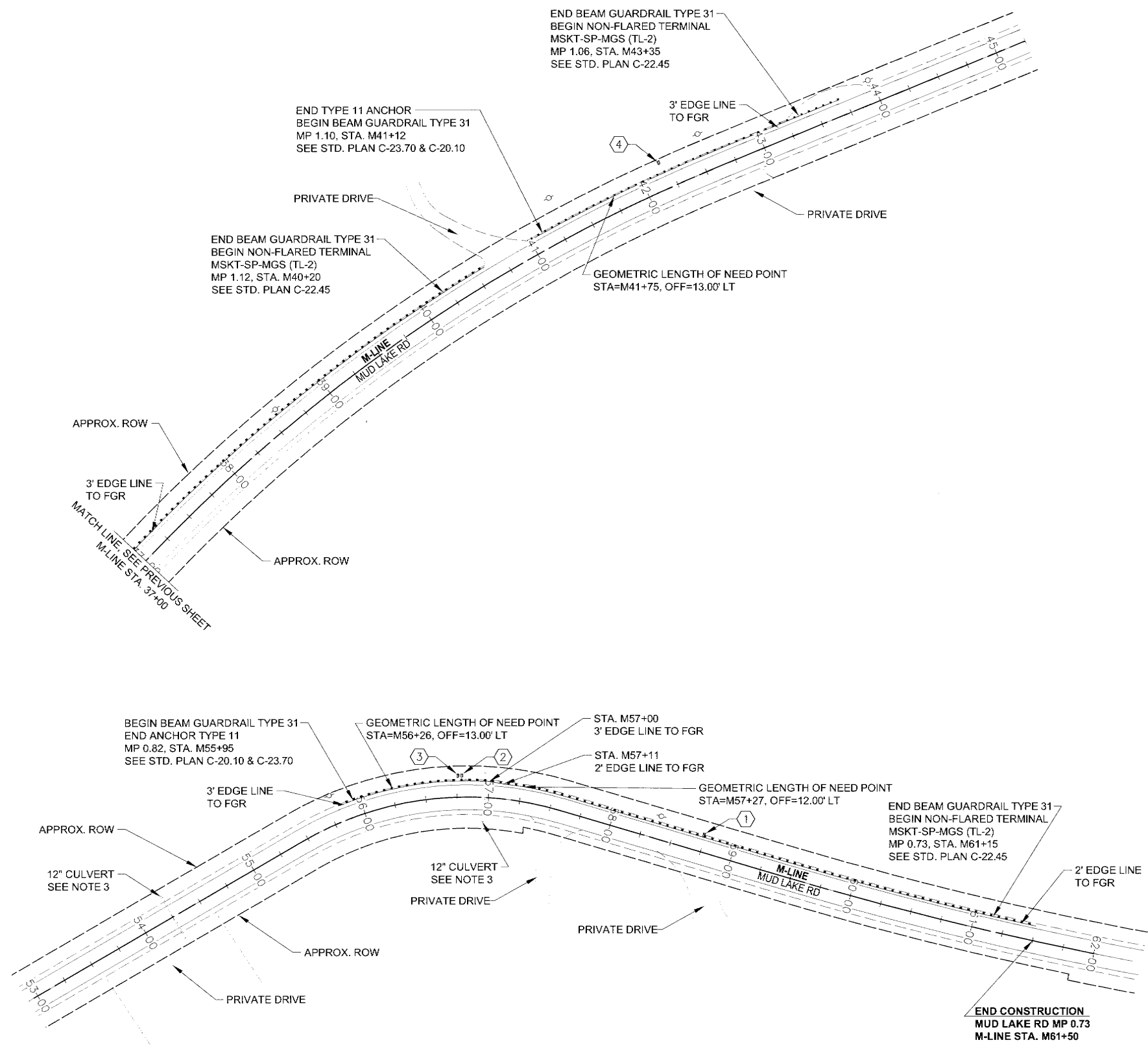
**BARRIER PROTECTION**

SCHEDULE A - MUD LAKE RD MP 0.73-0.82 &  
1.05-1.62

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
09 OF 12

MUD LAKE RD MP 0.73-1.62  
SCHEDULE A



SKAGIT COUNTY  
PUBLIC WORKS  
1800 CONTINENTAL PLACE  
MOUNT VERNON, WA 98273-5625  
(360) 416-1400 FAX (360) 416-1405

DATE

REVISIONS



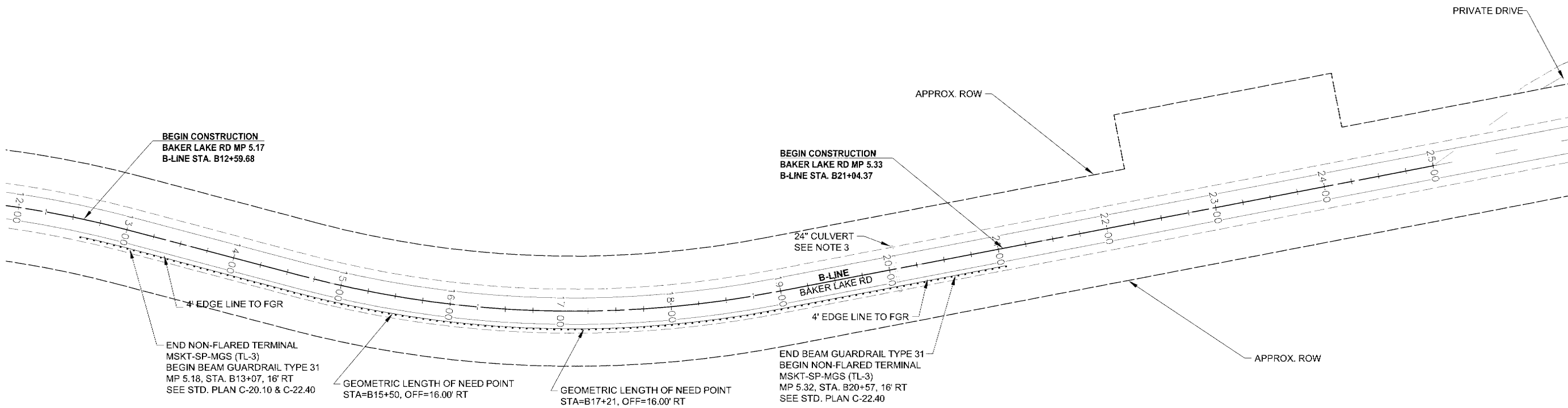
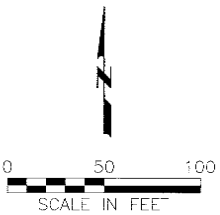
PROJECT NO.: ES78600-1  
FED. AID NO.: HSIP-000S(625)  
DESIGNED BY: DJW  
CHECKED BY: TMW  
DRAWN BY: DJW  
APPROVED BY: GHK  
PROJECT LOCATED NEAR:  
CLEAR LAKE, WA  
SEC 2 & 11 T34N R4E

BARRIER PROTECTION  
SCHEDULE A - MUD LAKE RD MP 0.73-0.82 &  
1.05-1.62

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SHEET  
10 OF 12

BAKER LAKE ROAD MP 5.17-5.33  
SCHEDULE B



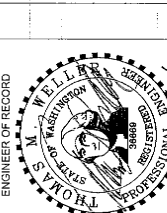
SCHEDULE B REFLECTORS	
TYPE	QUANTITY
FLEXIBLE GUIDE POST STD. PLAN 40-10-03	8 EA

SCHEDULE B GUARDRAIL	
TYPE	QUANTITY
BEAM GUARDRAIL TYPE 31 6' & 8' POST STD. PLAN C-20.10-06	756 LF

SCHEDULE B GUARDRAIL CASES				
DESCRIPTION	BEGIN STA	END STA	POST LENGTH	CASE NO.
TL-3 TERMINAL		B13+07		
TYPE 31 BEAM GUARDRAIL	B13+07	B17+00	6	1
TYPE 31 BEAM GUARDRAIL	B17+00	B20+57	8	4
TL-3 TERMINAL	B20+57			

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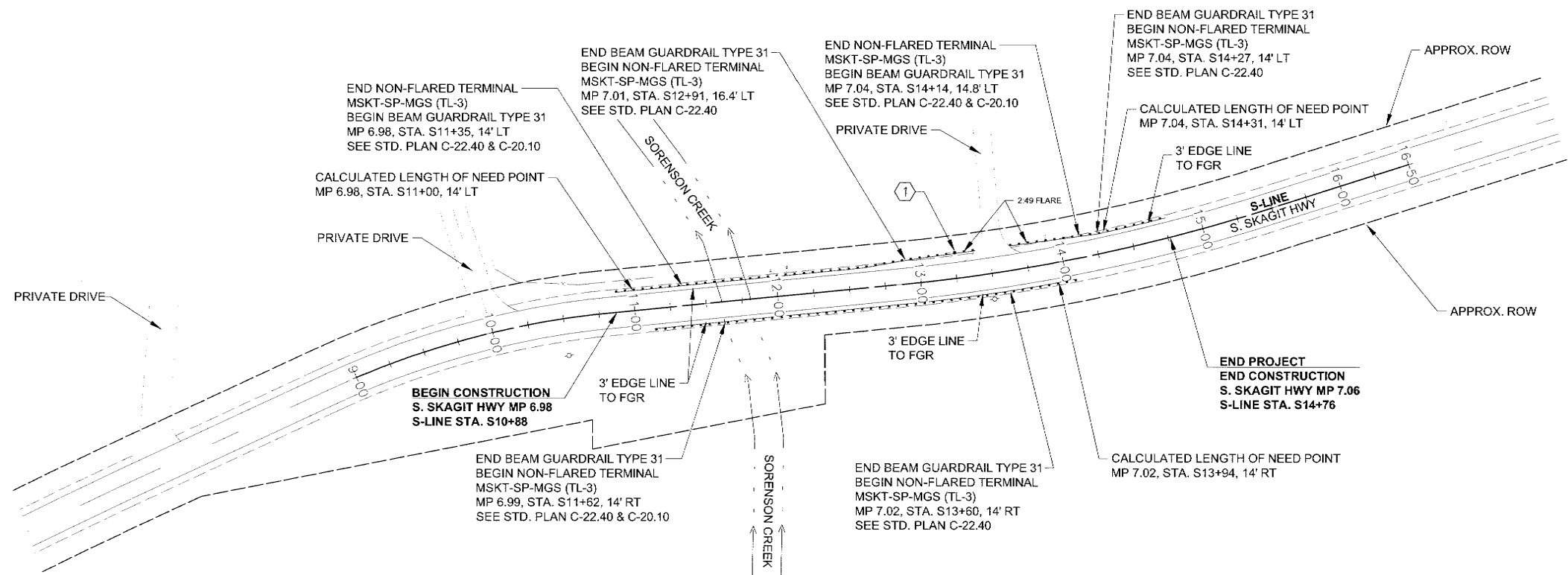
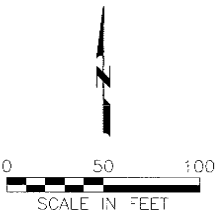


PROJECT NO.: E578600-1 FED. AID NO.: HSP-000(S)(25) DESIGNED BY: DJW CHECKED BY: TMW	DRAWN BY: DJW APPROVED BY: GKK PROJECT LOCATED NEAR: CONCRETE, WA SEC 32 T36N R9E
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BARRIER PROTECTION	SCHEDULE B - BAKER LAKE RD MP 5.17-5.33
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1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY

SOUTH SKAGIT HIGHWAY MP 6.98-7.06  
SCHEDULE C



MAILBOX SCHEDULE			
NO.	ADDRESS	EX. STA.	NEW STA.
1	29517	S13+25	S13+34

SCHEDULE C REFLECTORS	
TYPE	QUANTITY
FLEXIBLE GUIDE POST STD. PLAN 40.10-03	8 EA

SCHEDULE C GUARDRAIL	
TYPE	QUANTITY
BEAM GUARDRAIL TYPE 31 8' & 9' POST STD. PLAN C20.10-06	380 LF

SCHEDULE C GUARDRAIL CASES				
DESCRIPTION	BEGIN STA.	END STA.	POST LENGTH	CASE NO.
TL-3 TERMINAL		S11+35 LT		
TYPE 31 BEAM GUARDRAIL	S11+35 LT	S12+91 LT	8	4
TL-3 TERMINAL		S12+91 LT		
TL-3 TERMINAL		S14+14 LT		
TYPE 31 BEAM GUARDRAIL	S14+14 LT	S14+27 LT	8	4
TL-3 TERMINAL		S14+27 LT		
TL-3 TERMINAL		S11+62 RT		
TYPE 31 BEAM GUARDRAIL	S11+62 RT	S12+75 RT	8	4
TYPE 31 BEAM GUARDRAIL	S12+75 RT	S13+50 RT	9	5
TYPE 31 BEAM GUARDRAIL	S13+50 RT	S13+60 RT	8	4
TL-3 TERMINAL		S13+60 RT		

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REVISIONS	DATE



PROJECT NO.: ES78600-1  
FED. AID NO.: HSIP-000(S)(25)  
DESIGNED BY: DJW  
CHECKED BY: TMW  
DRAWN BY: DJW  
APPROVED BY: GKK  
PROJECT LOCATED NEAR:  
SEDRO-WOOLLEY, WA  
SEC 25 T39N R5E

BARRIER PROTECTION  
SCHEDULE C - SOUTH SKAGIT HIGHWAY MP  
6.98-7.06

1 INCH SCALE BAR  
ADJUST SCALE ACCORDINGLY