

# BUTT – LONG ALEC CREEK – 35 FT STEEL BRIDGE

RCO/SRFB PROJECT # 23-1484  
WRIA#60

**LEGAL DESCRIPTION:**

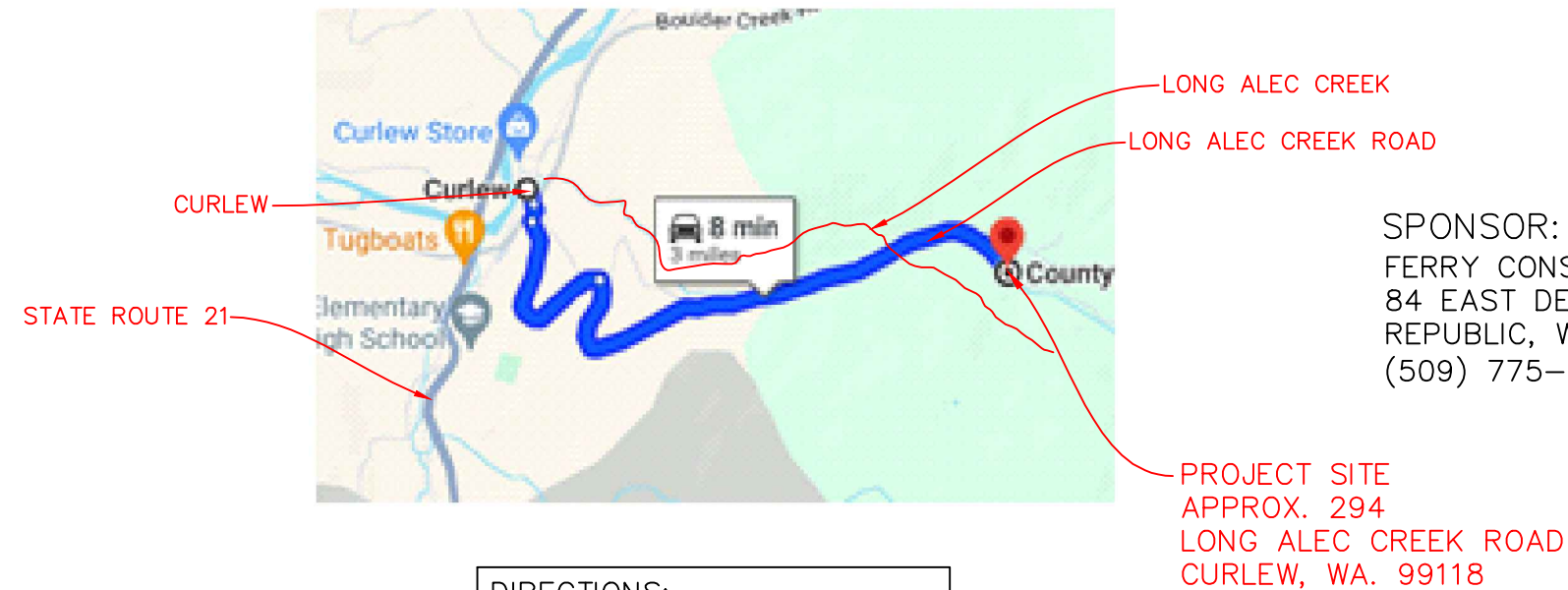
LAT. N48.87882, LONG. W118.55828  
S18, T39, R34E  
FERRY COUNTY, WA

**APPLICANT & OWNER:**

LOREN & SHARI BUTT  
6415 162ND ST E  
PUYALLUP, WA 98375  
(206) 442-9881

GENERAL NOTES:

1. THIS CULVERT REPLACEMENT IS A PROJECT SPONSORED BY THE FAMILY FOREST FISH PASSAGE PROGRAM (3F2P).
2. THE NEW DESIGN IS BASED ON A 16'x35' STEEL BRIDGE WITH A BANK FULL WIDTH OF 13' AND A 3.3% SLOPE UNDER THE BRIDGE. (SEE SHEET 2 FOR BANK FULL WIDTH CALCULATIONS.)
3. ACCESS MUST BE MAINTAINED FOR A FOOTPATH CROSSING THE STREAM APPROXIMATELY 100 FEET DOWNSTREAM OF THE DRIVEWAY.
4. THE 100 YEAR STORM FLOW RATE ACCORDING TO VERSION 4.18.1 OF USGS STREAMSTAT SERVICES IS 197 CFS, AND WITH AN ERROR FACTOR OF 1.969, THE DESIGN FLOW IS 388 CFS.
5. UPSTREAM GRADIENT IS 1.1% BETWEEN STATIONS 4+12 AND 5+20. DOWNSTREAM GRADIENT CONTINUES AT 3.3% FOR APPROXIMATELY 125 FEET.
6. THERE IS A TELEPHONE LINE BURIED IN THE DRIVEWAY. THERE ARE NO OTHER KNOWN UTILITIES IN THE CONSTRUCTION AREA. HOWEVER, THERE ARE OVERHEAD POWER LINES IN THE AREA. CONTRACTOR IS TO CONTACT THE UTILITY LOCATE COMPANY IN ACCORDANCE WITH CURRENT REGULATIONS.



**DIRECTIONS:**  
FROM CURLEW, GO .1 MI. ON BOULDER CREEK RD. TO LONG ALEC CREEK ROAD, GO 2.8 MILES TO THE PROJECT ON THE RIGHT.

**SPONSOR:**  
FERRY CONSERVATION DISTRICT  
84 EAST DELAWARE  
REPUBLIC, WA 99166  
(509) 775-3473

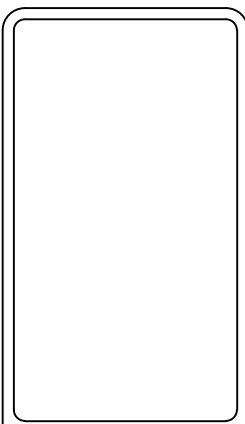
**PREPARED BY:**  
RIVERSONG ENGINEERING  
& CONSULTING  
6734 RIVER WAY  
FRUITLAND, WA. 99129  
(509) 722-5165

SEQUENCE

1. DIVERT STREAM IF NECESSARY.
2. REMOVE EXISTING CULVERT IF NOT USED FOR BYPASS.
3. EXCAVATE FOR ABUTMENTS.
4. INSTALL ABUTMENTS ON PROPER SUBGRADE.
5. BACKFILL ABUTMENTS, AS NECESSARY.
6. INSTALL RIP RAP
7. INSTALL STREAMBED MATERIAL.
8. WASH DOWN NEW STREAMBED.
9. INSTALL BRIDGE.
10. REGRADE DRIVE
11. REMOVE BYPASS.
12. SEED AND MULCH.

DRAWING INDEX

1. COVER SHEET – 35 FT BRIDGE
2. EXISTING SITE PLAN
3. NEW SITE PLAN
4. BRIDGE INSTALLATION
5. PROFILES
- C1. ABUTMENT DESIGN



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3F2P – BUTT  
APPROX 294 LONG  
ALEC CREEK ROAD  
CURLEW, WN. 99118

No.	Revision/Issue	Date
A	PERMIT	05/17/24

COVER SHEET

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AS NOTED			

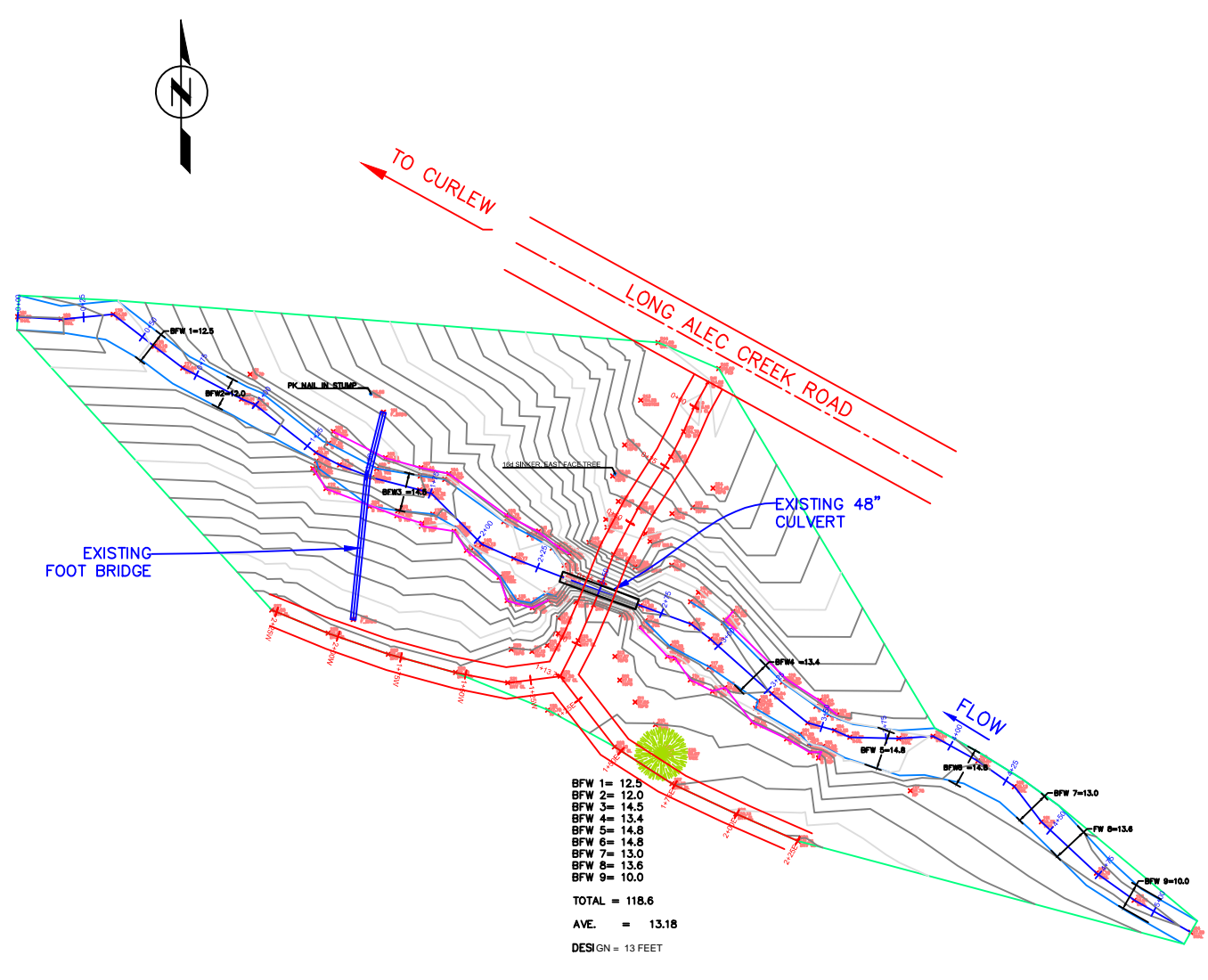


FIG 1 -- EXISTING PLAN

50 75 100  
SCALE

CONTRACTOR NOTES:

- DESIGN ELEVATIONS ARE BASED ON TEMPORARY BENCHMARKS (TBM) LOCATED AT 15' EAST OF ROAD STATION 0+35 AT AN ELEVATION OF 102.9 AND/OR A PAVEMENT NAIL IN A FIR STUMP LOCATED 8.5 FT NORTHWEST OF THE NORTH END OF THE FOOTBRIDGE AT AN ELEVATION OF 96.9. RELOCATE BENCHMARKS TO A DIFFERENT LOCATION PRIOR TO THE START OF CONSTRUCTION IF REQUIRED.
- STREAMBED AND RIP-RAP MATERIALS TO BE REVIEWED BY ENGINEER PRIOR TO HAULING.
- CONTACT ENGINEER PRIOR TO START OF CONSTRUCTION. ENGINEER TO BE ON SITE DURING EXCAVATION FOR AND PLACEMENT OF ABUTMENTS AND AT START OF STREAMBED MATERIAL PLACEMENT.
- ANY REMOVED TREES TO BE UTILIZED AS LARGE WOODY MATERIALS FOR BANK STABILIZATION ALONG THE ALTERED STREAMBED.

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LOREN & SHARI BUTT @ APPROX.  
294 LONG ALEC CREEK RD  
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No.	Revision/Issue	Date
A	PRELIMINARY	05/17/24

EXISTING PLAN

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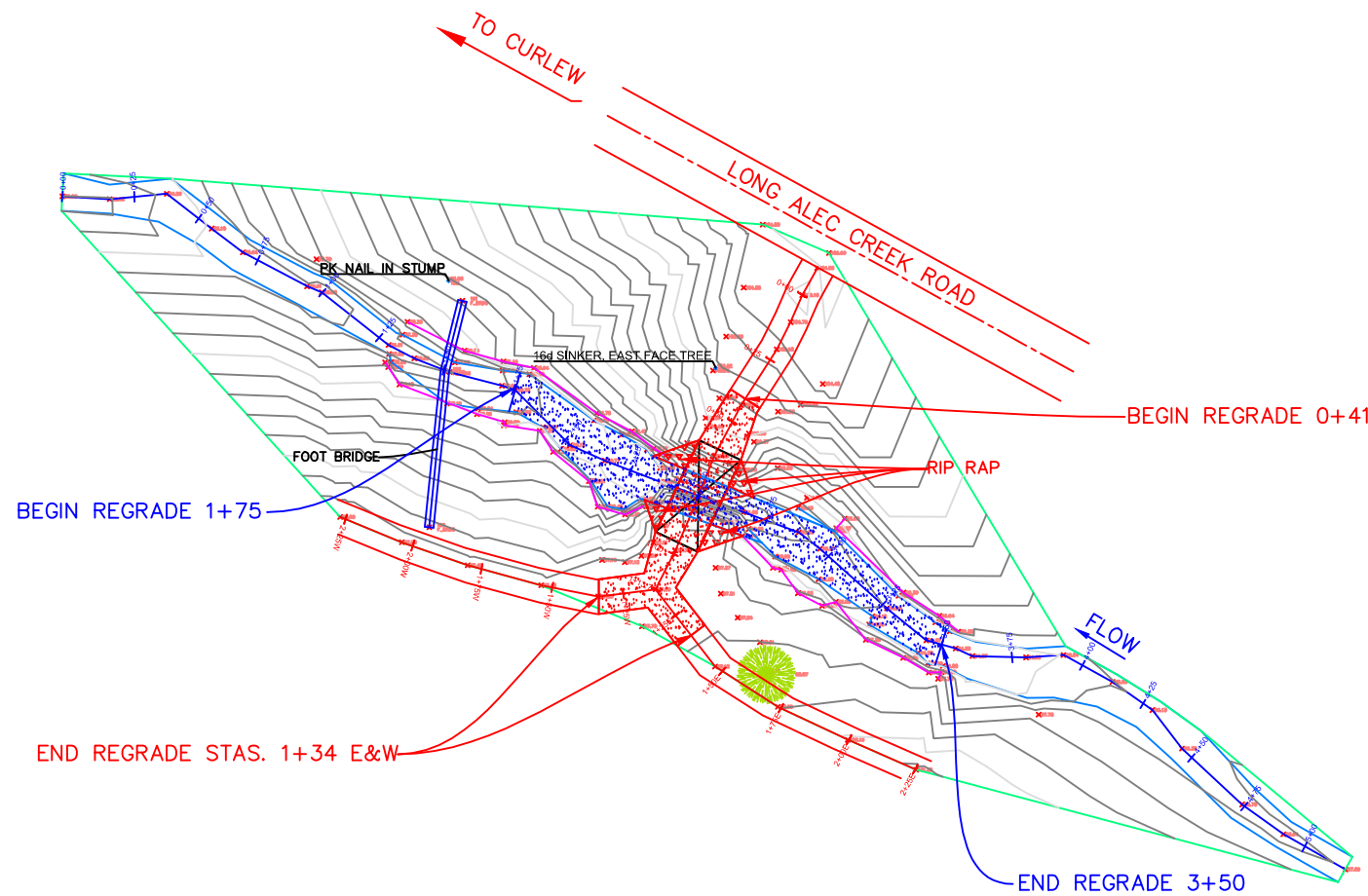


FIG 2 – NEW PLAN



**CONSTRUCTION NOTES**

1. CONTRACTOR IS TO INSTALL A NEW 16'X35' BRIDGE TO REPLACE A 48" CULVERT.
2. DESIGN ELEVATIONS ARE BASED ON TEMPORARY BENCHMARKS (TBM) LOCATED AT 15' EAST OF ROAD STATION 0+35 AT AN ELEVATION OF 102.9 AND/OR A PAVEMENT NAIL IN A FIR STUMP LOCATED 8.5 FT NORTHWEST OF THE NORTH END OF THE FOOTBRIDGE AT AN ELEVATION OF 96.9. RELOCATE BENCHMARKS TO A DIFFERENT LOCATION PRIOR TO THE START OF CONSTRUCTION IF REQUIRED.
3. STATIONING: THE GEOMETRIC CENTER OF THE NEW BRIDGE AND STREAM CL IS SET AT ROAD STATION 0+78.25 AND STREAM STATION 2+50.
4. BRIDGE ALIGNMENT: NEW BRIDGE IS TO BE CENTERED ON THE EXISTING DRIVE.
5. MINIMUM CLEARANCE BETWEEN STREAMBED AND BOTTOM OF BRIDGE GIRDERS ON UPSTREAM SIDE OF THE BRIDGE IS 5'-11".
6. INSTALL LARGE STONES (18" – 36") AT RANDOM SPACING OF 7 FT TO 10 FT ALONG STREAM BED. ORIENT LARGE ROCKS WITH LONG AXIS PARALLEL WITH STREAM. SEE FIGURE 4 – ROCK ORIENTATION DETAIL. SET STONES SO THE THALWAG MEANDERS THROUGH THE STONES.
7. OVER-EXCAVATE AS NEEDED AND REGRADE ALTERED STREAMBED FROM APPROXIMATE STATION 1+75 TO APPROXIMATE STATION 3+50. SLOPE TO BE APPROX. 3.3%. PLACE A MINIMUM OF 24 INCHES OF STREAMBED MATERIAL PER GRADATION SPECIFIED IN DRAWING 23006-4.
8. BEGIN ROAD GRADING AT STATION 0+41 . PLACE AT 3% GRADE TO THE THE NORTH END OF THE BRIDGE (STATION 0+60) TRANSITIONING FROM EXISTING TO 16 FT WIDE. ON THE SOUTH SIDE OF THE BRIDGE, CHANGE GRADE AT STATION 0+95 AND PLACE ROAD AT -5% TO DAYLIGHT (STA. 1+34E AND 1+34W) TRANSITIONING IN WIDTH FROM 16 FT TO EXISTING. CROWN THE FINISHED ROAD SURFACE 2% (OPTIONAL).
9. ANY EXCESS MATERIAL TO BE HAULED OFF.
10. RESEED ALL DISTURBED AREAS WITH NATIVE OR SITE APPROPRIATE GRASSES, SUCH AS CLOVER ALONG STREAMBANKS OR A WILDLIFE MIX, AS DIRECTED BY SCCD. MULCH SEEDED AREAS WITH STRAW AND USE SILT FENCE AND COIR LOGS AS NEEDED TO PREVENT SEDIMENT FROM WASHING INTO STREAM FROM DISTURBED AREAS.
11. NATIVE WOODY PLANTING WILL BE PERFORMED BY SSCD.

**DEWATER PROCEDURE:**

1. HAVE FISH CAPTURE AND TRANSPORTATION EQUIPMENT READY AND ON THE JOBSITE. HAVE AN EXTRA PUMP ON SITE TO DEWATER EXCAVATION AREAS.
2. SAFELY CAPTURE AND REMOVE ALL FISH. CAPTURED FISH SHALL BE IMMEDIATELY AND SAFELY TRANSFERRED TO FREE-FLOWING WATER DOWNSTREAM OF THE PROJECT SITE.
3. ANY DEVICE USED FOR DIVERTING WATER FROM A FISH BEARING STREAM SHALL BE EQUIPPED WITH A FISHGUARD OF 3/32" MESH TO PREVENT PASSAGE OF FISH INTO THE DIVERSION DEVICE. THE SCREENED INTAKE SHALL HAVE ENOUGH SURFACE AREA TO ENSURE THAT THE VELOCITY THROUGH THE SCREEN IS LESS THAN 0.4 FPS. THE SCREEN SHALL BE MAINTAINED AND IN PLACE WHENEVER WATER IS BEING DIVERTED.
4. WASH. DEPT. OF FISH & WILDLIFE (WDFW) MAY BE AVAILABLE TO ASSIST IN FISH REMOVAL BEFORE CONSTRUCTION IF PERSONNEL ARE AVAILABLE. IF AT ANY TIME FISH ARE KILLED OR IN DISTRESS, OR WATER QUALITY PROBLEMS DEVELOP, IMMEDIATELY NOTIFY WASH. DEPT. OF ECOLOGY AT 1-800-258-5990 AND WDFW AT 509-684-2362, EXT. 10.
5. SANDBAG ACROSS CHANNEL UPSTREAM AND DOWNSTREAM OF THE WORK AREA AND INSTALL FISH BARRIER UPSTREAM OF THE COLLECTION SUMP.
6. INSTALL TEMPORARY DIVERSION PUMP AND DIVERT STREAM AROUND WORK AREA. OPTION – INSTALL DIVERSION CHANNEL OR PIPE AROUND EXISTING CULVERT IN LIEU OF DIVERSION PUMP.
7. REMOVE CULVERTS AND INSTALL NEW ABUTMENTS, STREAMBED AND RIPRAP PER DRAWINGS.
8. RELEASE ENOUGH WATER TO "WASH" NEW STREAMBED OF FINE SURFACE SEDIMENT. DISPOSE WASH WATER AWAY FROM STREAM.
9. REMOVE SANDBAGS AND FISH BARRIER.
10. INSTALL BRIDGE AND ROAD.

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NEW PLAN

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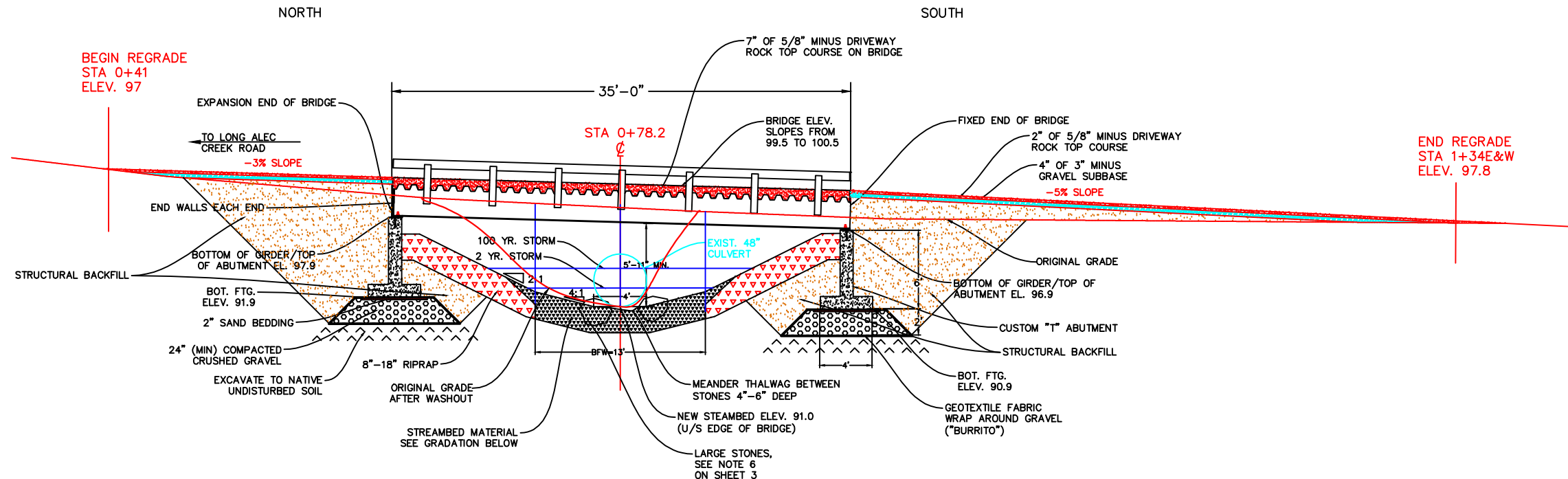


FIG. 3 - STREAM CROSS SECTION

16'x35' STEEL BRIDGE  
LOOKING UPSTREAM FROM  
UPSTREAM EDGE OF BRIDGE  
(STREAM STA. 2+58)

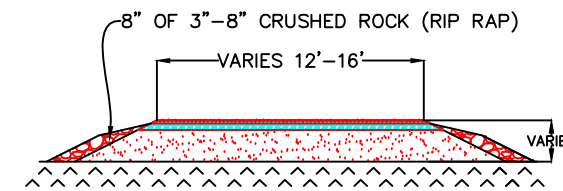


FIG. 6 - ROAD CROSS SECTION FROM  
0+41 TO 0+61 AND 0+96 TO 1+34 E&W

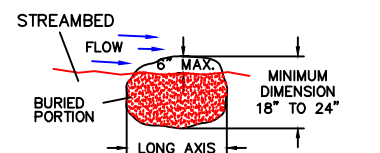
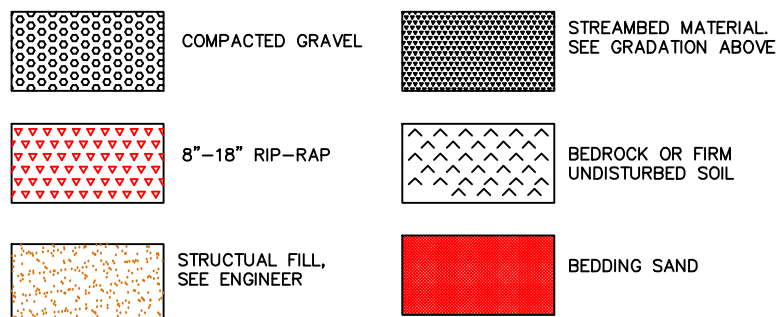


FIG. 4 - LARGE ROCK  
ROCK ORIENTATION DETAIL

BRIDGE INSTALLATION NOTES:

1. PREMANUFACTURED BRIDGE IS TO BE 16'x35' AND RATED FOR HL93 WITH U80 OVERLOAD. ABUTMENTS ARE TO BE PRECAST W/ 4000 PSI CONCRETE W/ 5% AIR ENTRAINMENT. BRIDGE AND ABUTMENTS PROVIDED BY OTHERS UNLESS OTHERWISE NOTED. CONTRACTOR TO COORDINATE DELIVERY & OFF-LOADING WITH BRIDGE AND ABUTMENT SUPPLIERS.
2. THE STEEL BRIDGE SUPERSTRUCTURE SHALL BE ASSEMBLED AND INSTALLED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, 2002, AND THE STRUCTURAL STEEL FABRICATING PLANT SHALL BE CERTIFIED UNDER THE AISC QUALITY CERTIFICATION PROGRAM FOR COMPLEX STEEL BRIDGES.
3. SHEAR (GUARD) RAILS SHALL COMPLY WITH WAC 296-54-531 (5) AND ARE TO INCLUDE REFLECTOR TABS AND END FLAIRS. CONTRACTOR TO PROVIDE YELLOW AND BLACK REFLECTIVE TAPE ON FLARED ENDS UNLESS OTHERWISE PROVIDED.
4. SEE BRIDGE MANUFACTURER'S SHOP DRAWINGS FOR MORE DETAILED INSTALLATION INSTRUCTIONS. MANUFACTURER'S SHOP DRAWING SHALL GOVERN SHOULD THERE BE CONFLICTS WITH THIS DESIGN.
5. THIS DRAWING ASSUMES 24" STRINGER BEAMS AS STANDARD FOR THE BRIDGE. SHOULD THE BEAMS BE DEEPER, ADDITIONAL MATERIAL WILL BE NEEDED ON THE ROAD APPROACHES TO MATCH TOP SURFACE OF BRIDGE.
6. MEANDER STREAM AND SLIGHTLY UNDULATE THE BOTTOM OF STREAM IN NEW STREAM BED.

LEGEND:



MATERIALS:

1. STREAMBED MATERIAL:  
FINES = 8%; 0"-1.5" = 15%;  
1.5"-3" = 31%; 3"-8" = 31%;  
ROUND RIVER ROCK 8"-18" = 15%
2. GEOTEXTILE FABRIC: TENCATI MIRAFL 135N  
OR EQUAL

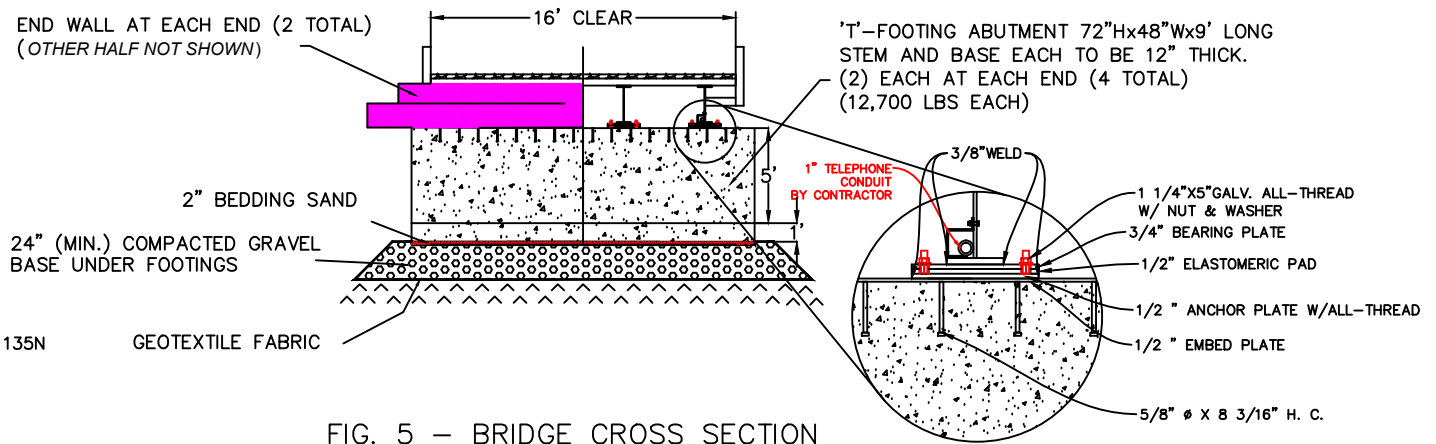


FIG. 5 - BRIDGE CROSS SECTION

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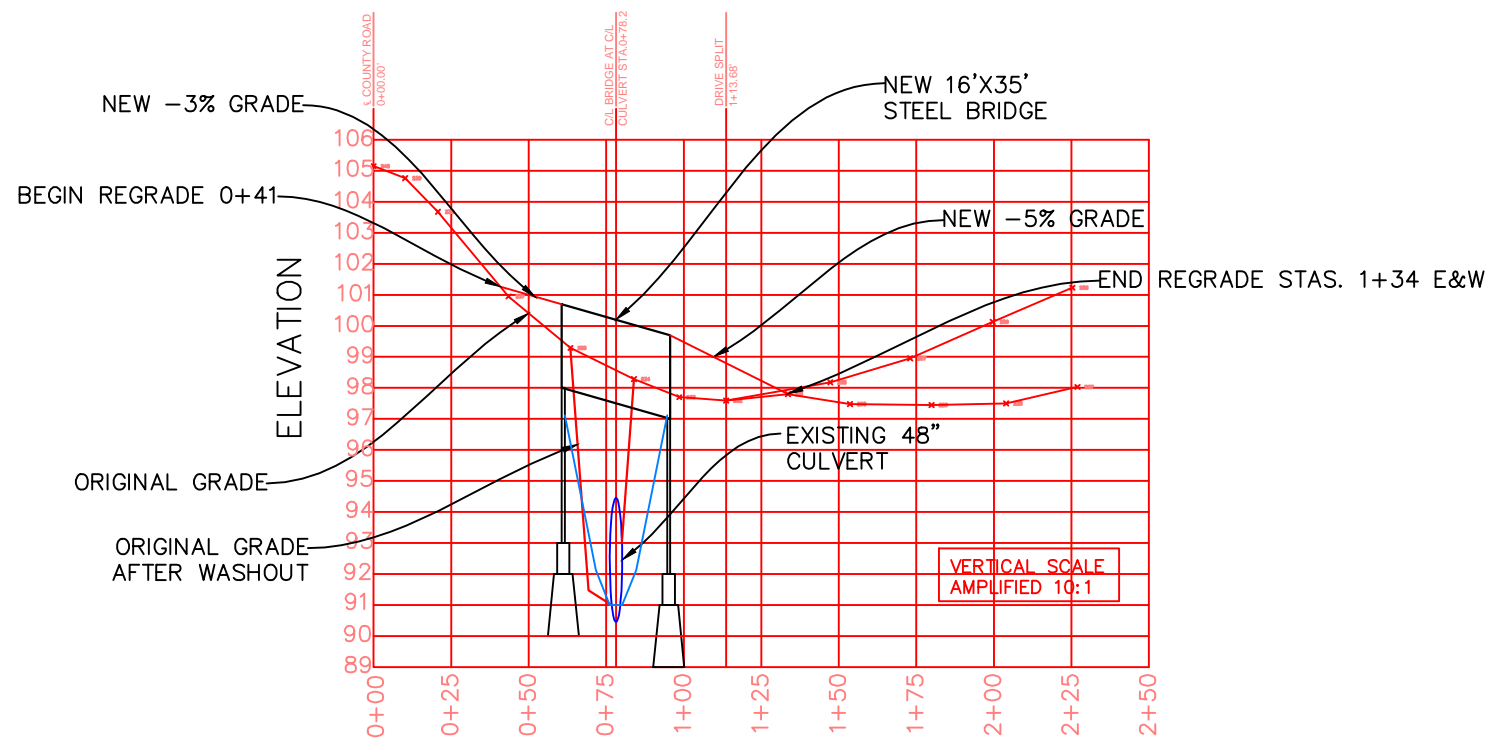
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BRIDGE  
INSTALLATION

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STATION  
FIG. 7 ROAD PROFILE

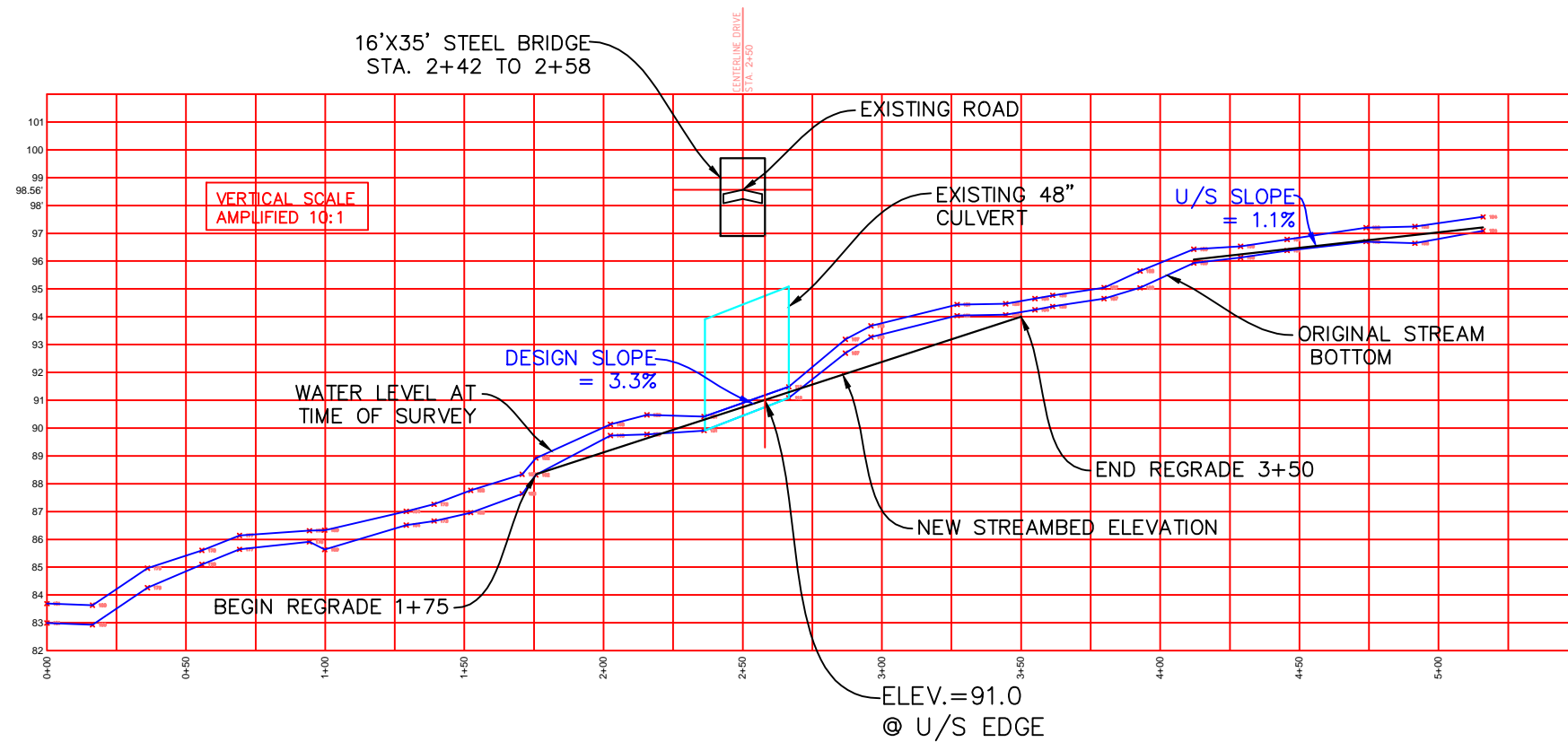


FIG. 8 STREAM PROFILE

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PROFILES

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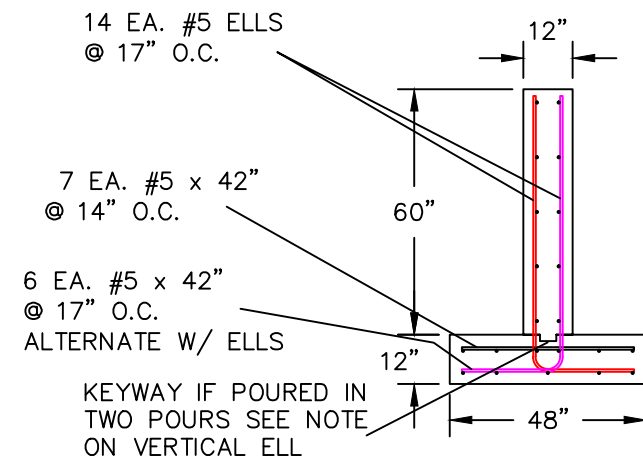
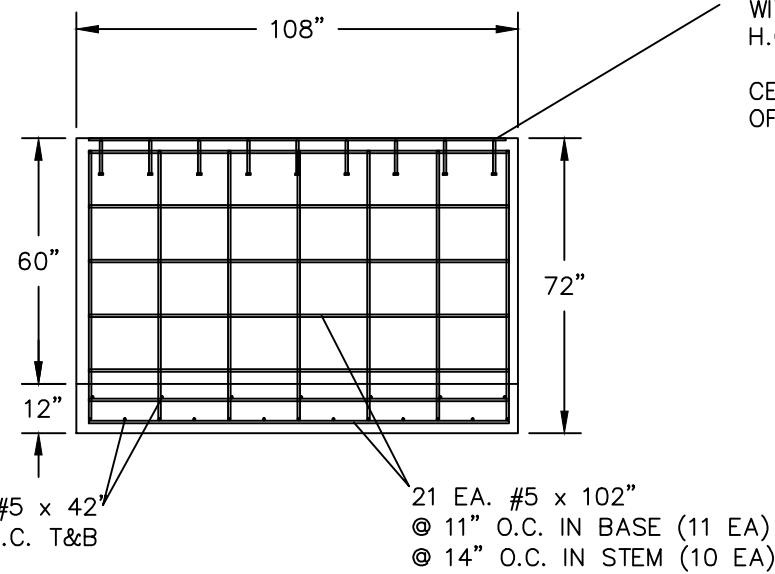


FIG 9 - ABUTMENT



1/2"x6" x 102" STEEL PLATE  
CAST INTO TOP AND ANCHORED  
WITH 9 EA. 5/8"Øx8-3/16"  
H.C.A.

CENTER PLATE IN TOP FACE  
OF ABUTMENT AND SET FLUSH

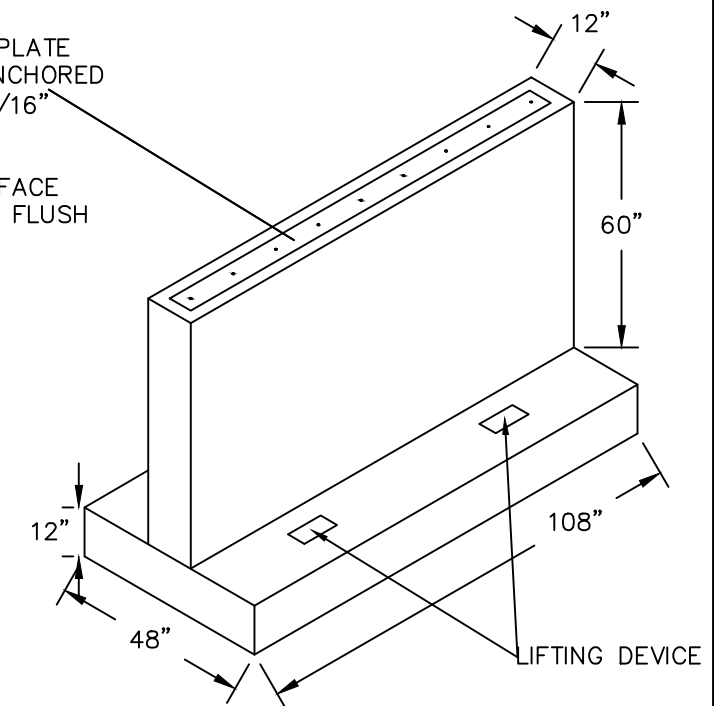


FIG 10 - ISOMETRIC

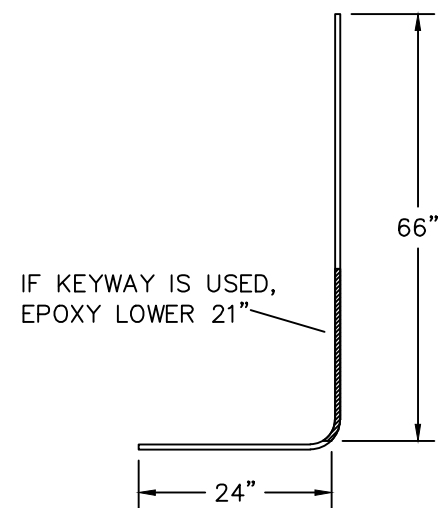


FIG 11 - VERTICAL ELLS - 14 EA OVERLAP @ CTR

**NOTES:**

- THIS DESIGN IS FOR ONE ABUTMENT SEGMENT. TWO SEGMENTS ARE REQUIRED PER END, OR FOUR SEGMENTS ARE REQUIRED IN TOTAL.
- CONCRETE MIX TO BE 6-SACK MIX (4,000 PSI) W/ 4%-7% AIR ENTRAINMENT.
- REBAR TO BE GRADE 60
- WEIGHT PER EACH SEGMENT = 12,500 POUNDS
- ALL REBAR SPLICES SHALL BE A MINIMUM OF 40 BAR DIAMETERS.
- MANUFACTURER TO PROVIDE FOUR LIFTING POINTS IN THE BASE, PROPERLY SIZED AND CAPABLE OF USING STANDARD HOOKS OR CLEVISSES FOR LIFTING.

MATERIALS PER SEGMENT (4 REQUIRED)			
QUANTITY	MEMBERS	DESCRIPTION	LENGTH
21	LONG. BAR	#5 REBAR	7'-6"
13	CROSS BAR	#5 REBAR	3'-6"
14	ELLS	#5 REBAR	7'-6"
1	WELD PLATE	1/2"x6"	8'-6"
4	LIFT ANCH.	EMBEDS	MFRS

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ABUTMENTS

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