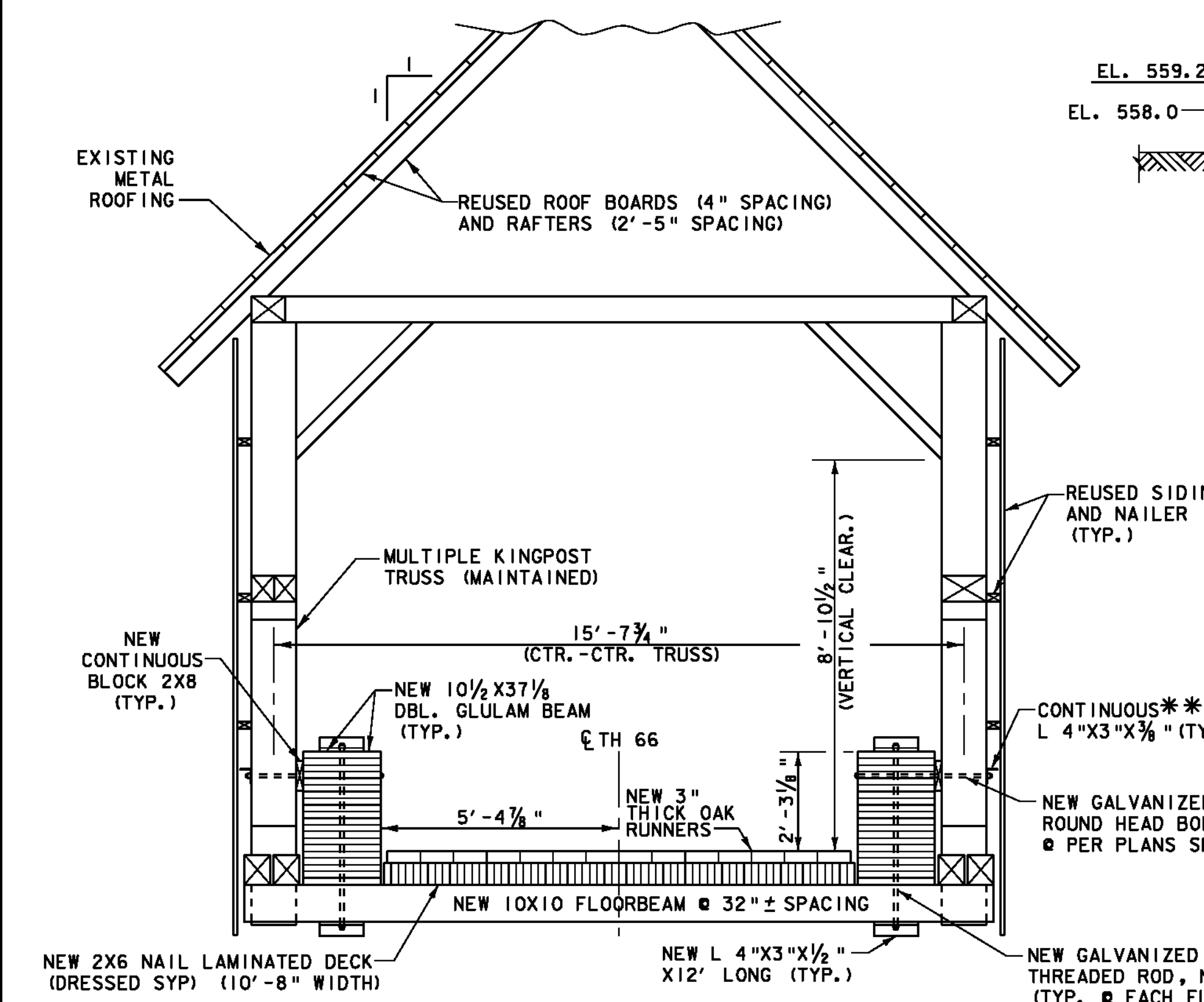
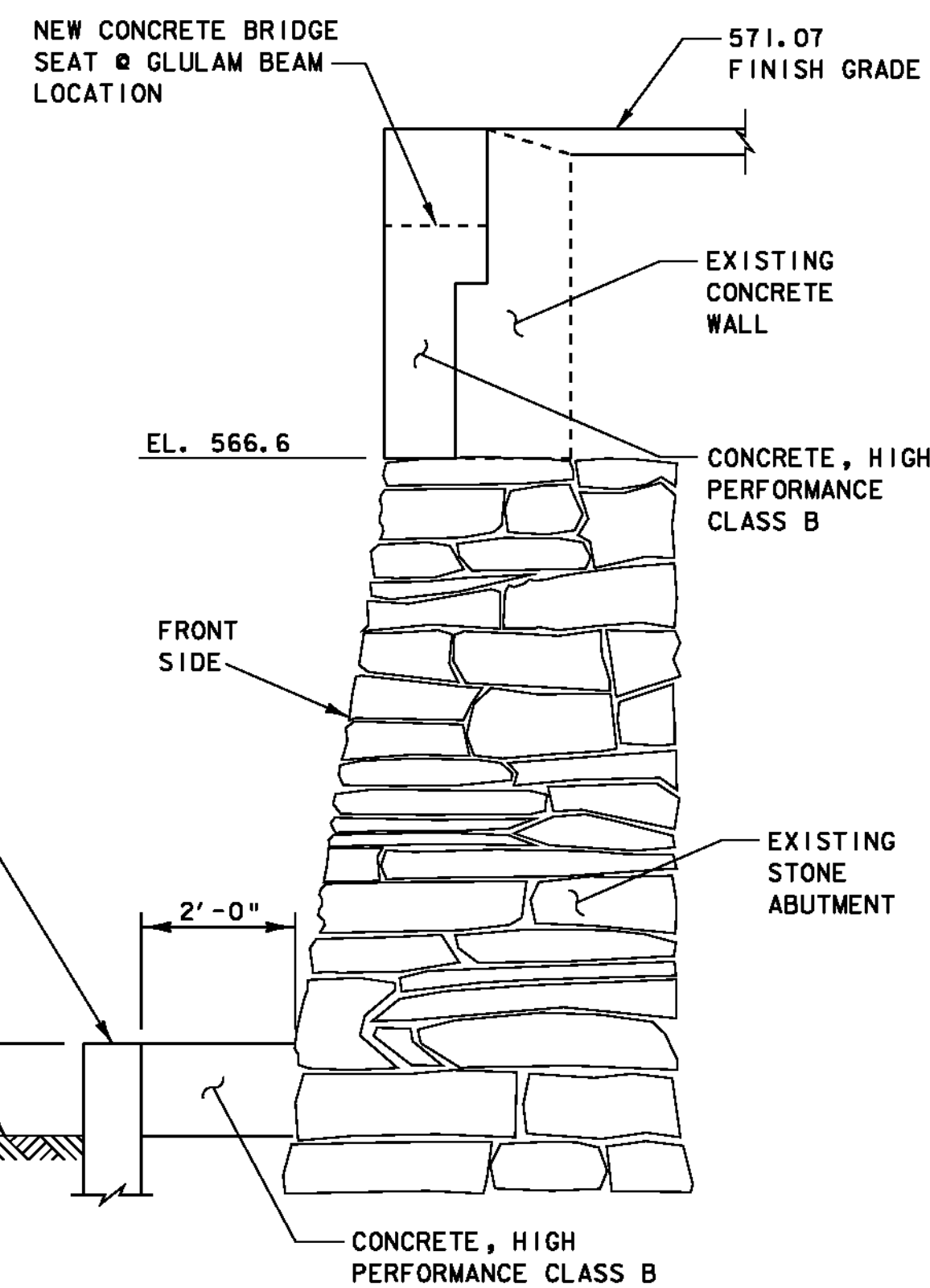


EXISTING CROSS SECTION
SCALE: 3/8" = 1'-0"



NEW H12 LIVE LOAD CROSS SECTION
SCALE: 3/8" = 1'-0"



SECTION @ EAST ABUTMENT*
SCALE: 1/2" = 1'-0"

* WEST ABUTMENT SECTION SIMILAR, WITH PERMANENT STEEL SHEET PILING AND CONCRETE FILL AT TOE OF ABUTMENT.

*** 12'-0" (MIN.) SEGMENTS

VAOT FINAL HYDRAULICS REPORT

Date: February, 2009

| | |
|-------------------------|--------------------------|
| TOWN: Randolph | COUNTY: Orange |
| PROJECT #: BHO 1444(53) | STREAM: 2nd Br. White R. |
| HIGHWAY #: TH 66 | STRUCTURE #: 34 |

HYDROLOGIC DATA

DRAINAGE AREA: 51.7 sq. miles
 CHARACTER OF TERRAIN: Rural, mixture of forest and open land
 STREAM CHARACTERISTICS: Sinuous, incised, alluvial
 NATURE OF STREAMBED: Sand and silt, armored with cobbles

PEAK FLOW DATA

| | |
|--------------------|--------------------|
| Q 2.33 = 1,850 cfs | Q 50 = 7,400 cfs |
| Q 10 = 4,150 cfs | Q 100 = 9,050 cfs |
| Q 25 = 5,700 cfs | Q 500 = 12,670 cfs |

DATE OF FLOOD OF RECORD: 1927
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q25 = 9.1 fps
 ICE CONDITIONS: Moderate
 DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Covered Bridge
 YEAR BUILT: 1904, reconstructed in 1978
 CLEAR SPAN(NORMAL TO STREAM): 49'
 VERTICAL CLEARANCE ABOVE STREAMBED: 9'
 WATERWAY OF FULL OPENING: 405 sq. ft.
 DISPOSITION OF STRUCTURE: Rehabilitate
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

| | |
|----------------|--------------------|
| Q2.33 = 566.4' | VELOCITY = 7.2 fps |
| Q10 = 570.0' | " 8.3 fps |
| Q25 = 571.4' | " 9.1 fps |
| Q50 = 572.6' | " 9.8 fps |
| Q100 = 573.7' | " 10.4 fps |

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100:

FREQUENCY: Q10
 RELIEF ELEVATION: 566.8'
 DISCHARGE OVER ROAD @Q100: 6,770 cfs

UPSTREAM STRUCTURE

| | |
|--|----------------------------|
| TOWN: Randolph | DISTANCE: 1,200' |
| HIGHWAY #: Vt. 14 | STRUCTURE #: 34 |
| CLEAR SPAN: 58' | CLEAR HEIGHT: 12' |
| YEAR BUILT: 1994 | FULL WATERWAY: 523 sq. ft. |
| STRUCTURE TYPE: Single span steel beam | |

DOWNSTREAM STRUCTURE

| | |
|--|----------------------------|
| TOWN: Randolph | DISTANCE: 10.375' |
| HIGHWAY #: I.H. 73 | STRUCTURE #: 39 |
| CLEAR SPAN: 40' | CLEAR HEIGHT: 8' |
| YEAR BUILT: 1929 | FULL WATERWAY: 320 sq. ft. |
| STRUCTURE TYPE: Single span steel beam | |

PROPOSED STRUCTURE

STRUCTURE TYPE: Rehabilitated covered bridge

CLEAR SPAN(NORMAL TO STREAM): 49'
 VERTICAL CLEARANCE ABOVE STREAMBED: 11.3'
 WATERWAY OF FULL OPENING: 530 sq. ft.

WATER SURFACE ELEVATIONS AT:

| | |
|----------------|--------------------|
| Q2.33 = 566.4' | VELOCITY = 7.2 fps |
| Q10 = 569.4' | " 8.4 fps |
| Q25 = 571.3' | " 9.1 fps |
| Q50 = 572.4' | " 9.8 fps |
| Q100 = 573.5' | " 10.4 fps |

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Below Q25
 RELIEF ELEVATION: 566.8'
 DISCHARGE OVER ROAD @Q100: 6,370 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 570.5'
 VERTICAL CLEARANCE: @ Q25 = 0.0'

SCOUR: Abutment scour is approximately 3.0' at Q100. Scour countermeasure is part of this project.
 REQUIRED CHANNEL PROTECTION: N/A

PERMIT INFORMATION

| | |
|------------------------------|---------------------|
| AVERAGE DAILY FLOW: 105 cfs | DEPTH OR ELEVATION: |
| ORDINARY LOW WATER: 50 cfs | 3.5' |
| ORDINARY HIGH WATER: 800 cfs | 6.5' |

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

NAVD 88 Datum
 Velocities reported are channel velocities

TRAFFIC DATA (EST.)

| YEAR | ADT | DHV | % D | % T | ADTT |
|------|-----|-----|-----|-----|------|
| 2011 | 60 | 20 | 57 | 2.3 | <10 |
| 2031 | 80 | 24 | 57 | 2.3 | <10 |

FLEXIBLE ESAL' @ 2008-2028 <50,000 2008-2048 <50,000

ASD LOAD RATING (TONS)

| LOADING LEVELS (LOAD FACTOR) | TRUCK | | | | |
|------------------------------|-------|----|-----|-----------------|--------------------|
| | H | HS | 3S2 | 6 AXLE 3A, STR. | 4A, STR. 5A, SEMI. |
| INVENTORY | 12.1 | | | | |
| POSTED | 15.2 | | | | |
| OPERATING | 16.8 | | | | |

COMMENTS: NEW FLOOR BEAMS CONTROL LOAD RATING

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO: H12 (INVENTORY LEVEL)
- DESIGN SPAN: 48 FEET (GLULAM BEAMS)
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL ON LEDGE: _____
- ALLOWABLE LOAD FOR PILING: N/A
TYPE: N/A
ESTIMATED LENGTH: N/A
- STRUCTURAL STEEL AASHTO M270/M270M GRADE: N/A
- REINFORCING STEEL GRADE: 60
- CONCRETE, HIGH PERFORMANCE CLASS A f_c: N/A
CONCRETE, HIGH PERFORMANCE CLASS B f_c: 3500 psi
- DESIGN SOIL UNIT WEIGHT: N/A
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL: N/A

| | |
|---------------------------------|------------------------|
| PROJECT NAME: RANDOLPH | PLOT DATE: 09-NOV-2010 |
| PROJECT NUMBER: BHO 1444(53) | DRAWN BY: C. WEEBER |
| FILE NAME: s06J0921yp | DESIGNED BY: J. WEAVER |
| PROJECT LEADER: M. SARGENT | CHECKED BY: J. WEAVER |
| TYPICAL SECTIONS & PROJECT DATA | SHEET 2 OF 27 |

** FOR FURTHER SUPERSTRUCTURE WORK DETAILS, SEE SHEETS 15 - 22. UNLESS NOTED OTHERWISE, EXISTING MEMBERS REMAIN IN PLACE.