FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI	–		1	21

INDEX OF DRAWINGS

STATE OF RHODE ISLAND

TOWN OF BURRILLVILLE

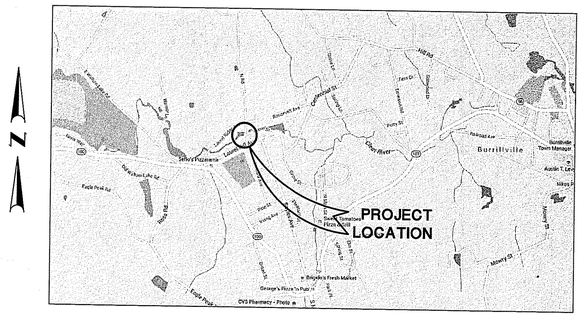
PLANS, PROFILES AND SECTIONS OF PROPOSED

BRIDGE REPLACEMENT

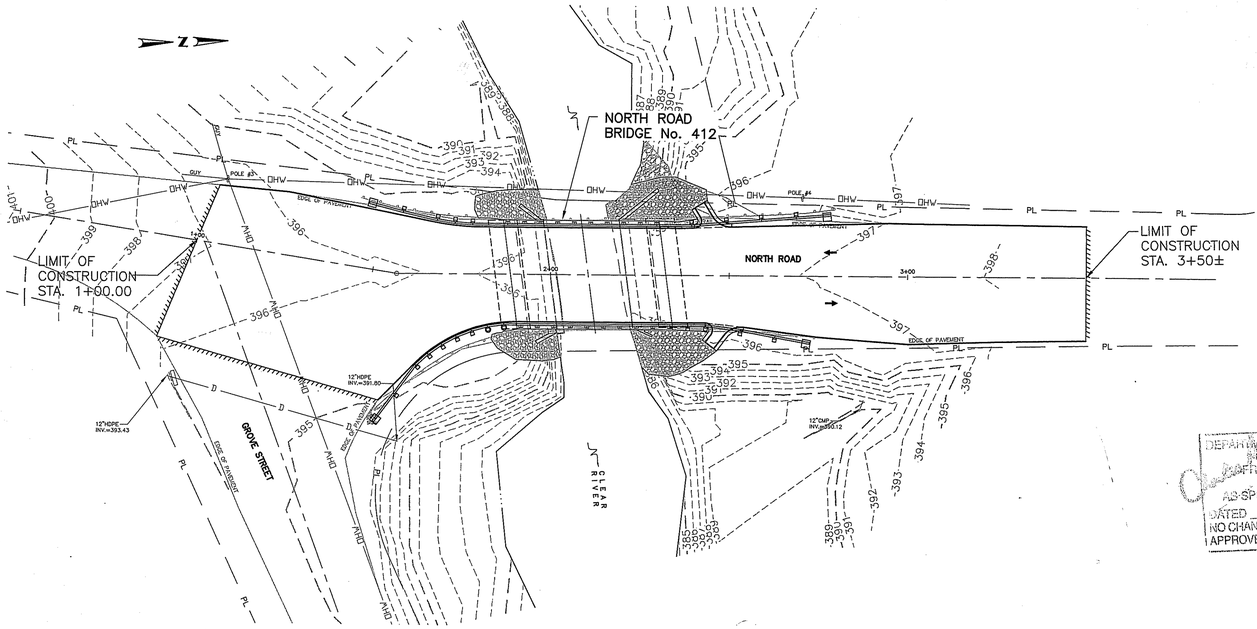
NORTH ROAD BRIDGE NO. 412

LENGTH = 0.03 MILES

TOWN OF BURRILLVILLE
COUNTY OF PROVIDENCE



LOCATION MAP
NOT TO SCALE



PLAN
SCALE: 1"=20'

0 20 40 60
SCALE IN FEET

BASE OF LEVELS
NAVD 1988 VERTICAL
RI PLANE COORDINATE SYSTEM
NAD 1983 HORIZONTAL

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 16 2016 FILE # 15-0179
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

FEB 3 2016

RIDEM SUBMISSION
DECEMBER 2015

R.I. STANDARD SPECIFICATIONS AND STANDARD DETAILS

SPECIFICATIONS TO GOVERN THIS PROJECT ARE THE R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AMENDED AUGUST 2013, WITH ALL REVISIONS, AND THE STATE AND FEDERAL SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS. STANDARD DETAILS FOR THIS PROJECT ARE R.I. STANDARD DETAILS, 1998 EDITION, WITH ALL REVISIONS.

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

Kambiz Karbassi
STATE OF RHODE ISLAND
No. 4737
REGISTERED PROFESSIONAL ENGINEER

Volume Number 1
Number of Sheet 1
Total Sheets 21

CEC# 14009.00

P:\14000\14009.00 North Road Bridge Replacement_Drawing\Structural_Covers_Drawings\0000X_V1_001_BCOVER.dwg, 12/11/2015 11:58:23 AM, RRF

0000X_V1_001_BCOVER

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			2	21

EXISTING		NEW
	EDGE OF PAVEMENT	
	BERM	
	CURB	
	GUARDRAIL	
MB	MAILBOX	
NO.	UTILITY POLE	NO.
	POLE GUY	GUY
	LUMINARE	
SIGN	SIGN	
(SIZE)SD	SUBDRAIN	N(SIZE)SD
(SIZE)D	STORMDRAIN	(Length —— Size)
(SIZE)S	SANITARY SEWER	(Length —— Size)
(SIZE)W	WATER MAIN	N(SIZE)W
(SIZE)G	GAS MAIN	N(SIZE)G
(SIZE)T	TELEPHONE DUCT	N–#(SIZE)T
(SIZE)E	ELECTRIC DUCT	N–#(SIZE)E
	PLUG AND CAP PIPE	
	ABANDONED UTILITY	
	FLARED END SECTION	
	HEADWALL	
WG OR GG	WATER OR GAS GATE	
CB	CATCH BASIN	
MH	MANHOLE	
HYD	HYDRANT	
1+00	BASELINE OR CENTERLINE	1+00
EXIST. S.H.L. PLAT NO. XX	STATE HIGHWAY LINE	*NEW S.H.L. PLAT NO. XX*
EXIST. S.F.L. PLAT NO. XX	STATE FREEWAY LINE	*NEW S.F.L. PLAT NO. XX*
EXIST. P.E.B.	PERMANENT EASEMENT LINE	NEW P.E.B.
EXIST. T.E.B.	TEMPORARY EASEMENT LINE	NEW T.E.B.
P	PROPERTY LINE	
CITY NAME / TOWN NAME	CITY OR TOWN LINE	
PWW	PAVED WATERWAY	
ELEV.	CONTOUR LINE	ELEV
	OPEN DITCH	
R.I.H.B.	R.I. HIGHWAY BOUND	
S.B.	STONE BOUND	
	RETAINING WALL	
	FIELD STONE WALL	
NO.	BORINGS	NO.
TYPE	FENCE	
	WOOD OR BRUSH LINE	
	TREES	
(NAME)	RIVER OR STREAM	
	WETLAND AREA	
NO. TYPE MATERIAL	BUILDING	
	FOUNDATION	
	BUILDING TO BE REMOVED	
	RAILROAD TRACKS	
	CUT AND MATCH	
	RIP–RAP	
	CUT SLOPE	ROADWAY / TOP OF SLOPE
	FILL SLOPE	ROADWAY / TOE OF SLOPE
	ROCK CUT	ROCK SHELF / ROCK / CUT
00x00	SPOT GRADE	x00.00
	AREA GRADED TO DRAIN	ELEV.
	BALED HAY RI STD 9.1.0	
	BALED HAY & SILT FENCE RI STD. 9.3.0	
123 124 125	EDGE OF WETLAND	
	WETLAND PERIMETER	
ASSF	AREA SUBJECT TO STORM FLOW	
100 YR. FLOOD BOUNDARY	100–YEAR FLOOD PLAIN	
	LIMIT OF DISTURBANCE	LIMIT OF DISTURBANCE
	LIMIT OF CLEARING	LIMIT OF CLEARING

1.1.0	UNDERDRAIN
1.3.0	CONCRETE CONNECTING COLLAR
2.1.0	CONCRETE HEADWALLS FOR PIPE CULVERTS
2.2.0	STANDARD HEADWALLS FOR MULTIPLE 3'–6" TO 7'–0" PIPE CULVERTS
2.3.0 (DIA.)	PRECAST CONCRETE FLARED END SECTION
3.2.0	BRICK/SOLID BLOCK 4'–0" ROUND MANHOLE
3.2.1 (DIA.)	BRICK/SOLID BLOCK 5'–0" OR 6'–0" ROUND MANHOLE
3.3.0	BRICK/SOLID BLOCK TYPE "D" SQUARE CATCH BASIN
3.3.2	BRICK/SOLID BLOCK TYPE "F" SQUARE CATCH BASIN
3.3.3	SOLID BLOCK FLUSH SQUARE CATCH BASIN
3.4.0	BRICK/SOLID BLOCK TYPE "D" ROUND CATCH BASIN
3.4.1	BRICK/SOLID BLOCK ROUND CATCH BASIN WITH GUTTER INLET
3.4.2	BRICK/SOLID BLOCK TYPE "F" ROUND CATCH BASIN
3.4.3	BRICK/SOLID BLOCK TYPE "R" CATCH BASIN
3.4.4	SOLID BLOCK FLUSH ROUND CATCH BASIN
3.4.5 (DIA.)	BRICK/SOLID BLOCK 5'–0" OR 6'–0" ROUND CATCH BASIN
3.5.0	SOLID BLOCK SHALLOW TYPE "F" SQUARE CATCH BASIN
3.5.1 (SIZE)	SOLID BLOCK SHALLOW 5'–0" OR 6'–0" SQUARE CATCH BASIN
3.6.0	BRICK/SOLID BLOCK DROP INLET
3.7.0 (DIA.)	BRICK/SOLID BLOCK ROUND MANHOLE OR CATCH BASIN GREATER THAN 12'–0"
4.2.0	PRECAST 4'–0" ROUND MANHOLE
4.2.1	PRECAST 5'–0" ROUND MANHOLE
4.2.2	PRECAST 6'–0" ROUND MANHOLE
4.3.0 (SIZE)	PRECAST 4'–0" OR 6'–0" SQUARE MANHOLE OR CATCH BASIN
4.4.0 (DIA.)	PRECAST 4'–0", 5'–0", OR 6'–0" ROUND CATCH BASIN
4.5.0	PRECAST CONCRETE DROP INLET
4.5.1	PRECAST CONCRETE DROP INLET LATERAL OUTLET
4.5.2	PRECAST CONCRETE DROP INLET LONGITUDINAL OUTLET
5.3.0	CATCH BASIN AND MANHOLE STEP
5.4.0	CONCRETE COLLARS
6.1.0	LIGHT–DUTY SQUARE FRAME AND ROUND COVER
6.1.1	HEAVY DUTY SQUARE FRAME AND ROUND COVER
6.2.0	LIGHT–DUTY ROUND FRAME AND COVER
6.2.1	HEAVY–DUTY ROUND FRAME AND COVER
6.3.0	SQUARE FRAME AND GRATE
6.3.1	SQUARE FRAME AND GRATE
6.3.2	SQUARE FRAME AND GRATE (BICYCLE SAFE)
6.3.3	HIGH CAPACITY FRAME AND GRATE
6.3.4	HIGH CAPACITY FRAME AND GRATE (BICYCLE SAFE)
6.4.0	ROUND FRAME AND GRATE
7.1.0S	PRECAST CONCRETE CURB (STRAIGHT)
7.1.0C	PRECAST CONCRETE CURB (CIRCULAR)
7.1.1	3'–0' PRECAST CONCRETE TRANSITION CURB
7.1.2	6'–0" PRECAST CONCRETE TRANSITION CURB
7.1.4	PRECAST 2'–0" RADIUS CORNER
7.1.5	PRECAST CONCRETE INLET STONE (FOR SQUARE CATCH BASIN)
7.1.6	PRECAST CONCRETE INLET STONE (FOR ROUND CATCH BASIN)
7.1.7	PRECAST CONCRETE APRON STONE (FOR SQUARE CATCH BASIN)
7.1.8	PRECAST CONCRETE APRON STONE (FOR ROUND CATCH BASIN)
7.2.0S	PRECAST CONCRETE SLOPED FACE CURB (STRAIGHT)
7.2.0C	PRECAST CONCRETE SLOPED FACE CURB (CIRCULAR)
7.2.1	PRECAST CONCRETE SLOPED FACE TRANSITION CURB
7.2.2	PRECAST CONCRETE TRANSITION CURB (VERTICAL FACE TO SLOPED FACE)
7.3.0S	GRANITE CURB (STRAIGHT)
7.3.0C	GRANITE CURB (CIRCULAR)
7.3.1	3'–0" GRANITE TRANSITION CURB
7.3.2	6'–0" GRANITE TRANSITION CURB
7.3.3	GRANITE WHEELCHAIR RAMP TRANSITION CURB
7.3.4	GRANITE 2'–0" RADIUS CORNER
7.3.5	GRANITE INLET STONE (FOR SQUARE CATCH BASIN)
7.3.6	GRANITE INLET STONE (FOR ROUND CATCH BASIN)
7.3.7	GRANITE APRON STONE (FOR SQUARE CATCH BASIN)
7.3.8	GRANITE APRON STONE (FOR ROUND CATCH BASIN)
7.4.0	GRANITE SLOPED FACE CURB
7.4.1	GRANITE SLOPED FACE TRANSITION CURB
7.4.2	GRANITE TRANSITION CURB (VERTICAL FACE TO SLOPE FACE)
7.5.0	BITUMINOUS CONCRETE LIP CURB
7.5.1A	BITUMINOUS BERM (CONSTRUCTION METHOD A)
7.5.1B	BITUMINOUS BERM (CONSTRUCTION METHOD B)
7.6.0	CURB SETTING DETAIL
8.2.0	BITUMINOUS CONCRETE DITCH
8.3.0	RIP–RAP DITCH
8.4.0	PAVED WATERWAY
9.1.0	BALED HAY EROSION CHECK
9.2.0	SILT FENCE DETAIL
9.3.0	BALED HAY DITCH EROSION CHECK AND SILT FENCE COMBINED
9.4.0	BALED HAY DITCH AND SWALE EROSION CHECK
9.5.0	LOG AND HAY CHECK DAM
9.7.0	DEWATERING BASIN
9.8.0	BALED HAY CATCH BASIN INLET PROTECTION
9.9.0	CONSTRUCTION ACCESS
10.1.0	WET STONE MASONRY RETAINING WALL
10.2.0	RUBBLE MASONRY WALL
10.3.0	CONCRETE RETAINING WALL
10.4.0	STONE MASONRY STEPS
14.1.0	CONCRETE HIGHWAY BOUND
15.1.0	POST AND MOUNTINGS FOR RURAL MAILBOX
15.2.0 (NO.)	POST AND MULTIPLE MOUNTINGS FOR RURAL MAILBOXES
18.2.0	PRECAST TYPE "A" HANDHOLE
18.2.2	HEAVY DUTY TYPE "H" HANDHOLE
18.3.0	ALUMINUM LIGHTING STANDARDS
20.2.0	BI–DIRECTIONAL CONTROL DEVICE
24.6.1	STREET SIGN MOUNTING DETAIL
26.2.0	POLYETHYLENE DRUM WITH MARKINGS
26.3.0	PVC PLASTIC PIPE TYPE III BARRICADE
31.1.0	CHAIN LINK FENCE 3'–0" TO 4'–0"
31.2.0	CHAIN LINK FENCE 5'–0" TO 6'–0"
31.2.1	CHAIN LINK FENCE 5'–0" TO 6'–0" INTERMEDIATE POST
31.3.0	WOVEN WIRE RIGHT–OF–WAY FENCE (STEEL POST)
34.1.0	TYPICAL GUARDRAIL INSTALLATION
34.2.0	STEEL BEAM GUARDRAIL
34.2.1	STEEL BEAM GUARDRAIL DETAILS
34.2.2	STEEL BEAM GUARDRAIL DOUBLE FACED ASSEMBLY
34.2.3	STEEL BEAM GUARDRAIL FIXTURES
34.2.5	STEEL BEAM GUARDRAIL REFLECTORIZED TRIANGULAR DELINEATOR
34.3.1	GUARDRAIL END SECTION
34.3.2	TERMINAL END SECTION (SINGLE FACE)
34.3.3	ANCHORAGE DETAILS APPROACH END SECTION
34.3.4	ANCHORAGE DETAILS TRAILING END SECTION
34.4.0	STEEL BACKED TIMBER GUARDRAIL
34.4.1	STEEL BACKED TIMBER GUARDRAIL TERMINAL SECTION–TYPE 1
40.1.0	DOUBLE–FACED PRECAST MEDIAN BARRIER
40.2.0	SINGLE–FACED PRECAST MEDIAN BARRIER
40.2.1	SINGLE–FACED PRECAST MEDIAN BARRIER
40.3.0	PRECAST MEDIAN BARRIER TRANSITION UNIT
40.5.0	PRECAST MEDIAN BARRIER FOR TEMPORARY TRAFFIC CONTROL
43.1.0	CEMENT CONCRETE SIDEWALK
43.2.0	BITUMINOUS CONCRETE SIDEWALK
43.3.0	WHEELCHAIR RAMP
43.3.1	WHEELCHAIR RAMP FOR LIMITED RIGHT–OF–WAY AREAS
43.4.0	DRIVEWAY DEVELOPMENT FOR 3'–0" TRANSITION CURB
43.4.1	DRIVEWAY DEVELOPMENT FOR 6'–0" TRANSITION CURB
43.5.0	CEMENT CONCRETE DRIVEWAYS
48.1.0	DETECTABLE WARNING SYSTEM
51.1.0	TREE PROTECTION DEVICE
51.1.1	DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES
51.2.0	SHRUB PROTECTION DEVICE
51.3.0	TREE WELL
51.4.0	TREE WALL

AB	ADJUST CATCH BASIN TO GRADE
ABM	ADJUST CATCH BASIN TO MANHOLE
AC	ADJUST CURB STOP TO GRADE
AD	ADJUST DRAINAGE MANHOLE TO GRADE
AE	ADJUST ELECTRIC MANHOLE TO GRADE
AFC	ADJUST FRAME AND COVER TO GRADE
AFG	ADJUST FRAME AND GRATE TO GRADE
AG	ADJUST GAS GATE BOX TO GRADE
AHH	ADJUST HANDHOLE TO GRADE
AS	ADJUST SANITARY SEWER MANHOLE TO GRADE
AT	ADJUST TELEPHONE MANHOLE TO GRADE
AW	ADJUST WATER GATE BOX TO GRADE
BCD	BITUMINOUS CONCRETE DRIVEWAY 3" BITUMINOUS CONCRETE TYPE I–2 8" GRAVEL BORROW SUBBASE COURSE
BPS	BUILD NEW STRUCTURE OVER EXISTING PIPE
CCB	CLEAN CATCH BASIN
CCP	CUT AND CAP PIPE WITH RESTRAINT (ALL SIZES)
CFP	CLEAN AND FLUSH PIPE
CG	CLEARING AND GRUBBING
CMH	CLEAN MANHOLE
CP (DEPTH)	COLD PLANE
CPP	CUT AND PLUG PIPE (ALL TYPES, ALL SIZES)
DB	REMOVE AND DISPOSE BITUMINOUS CURB
DC	REMOVE AND DISPOSE CONCRETE CURB
DCB	REMOVE AND DISPOSE CATCH BASIN
DDI	REMOVE AND DISPOSE DROP INLET
DF	REMOVE AND DISPOSE FENCE
DFC	REMOVE AND DISPOSE FRAME AND COVER
DFE	REMOVE AND DISPOSE FLARED END SECTION
DFG	REMOVE AND DISPOSE FRAME AND GRATE
DFH	REMOVE AND DISPOSE FIRE HYDRANT
DFP	REMOVE AND DISPOSE FLEXIBLE PAVEMENT
DG	REMOVE AND DISPOSE GUARDRAIL
DH	REMOVE AND DISPOSE HEADWALL
DHB	REMOVE AND DISPOSE HIGHWAY BOUND
DHH	REMOVE AND DISPOSE HANDHOLE
DL	REMOVE AND DISPOSE LIGHT AND FOUNDATION
DMB	REMOVE AND DISPOSE MEDIAN BARRIER
DMH	REMOVE AND DISPOSE MANHOLE
DMM	REMOVE AND DISPOSE MEDIAN MARKER
DOW	REMOVE AND DISPOSE OBSERVATION WELL
DP	REMOVE AND DISPOSE PIPE
DPB	REMOVE AND DISPOSE PAVEMENT AND RIGID BASE
DRB	REMOVE AND DISPOSE RIGID BASE
DS	REMOVE AND DISPOSE SIGN
DSS	REMOVE AND DISPOSE TRAFFIC SIGNAL SYSTEM
DSW	REMOVE AND DISPOSE SIDEWALK
DTD	REMOVE AND DISPOSE TELEPHONE DUCT BANKS
DUP	REMOVE AND DISPOSE UTILITY POLE
DWW	REMOVE AND DISPOSE PAVED WATERWAY
FF	FILTER FABRIC RIPRAP FLARED END UNDERLAYMENT
GET	FLARED GUARDRAIL END TREATMENT
IA	IMPACT ATTENUATOR
IDL	IMPERVIOUS DITCH LINER
LOD	LIMIT OF DISTURBANCE
LOR	LIMIT OF REGRADING
LS	4" LOAM AND SEED

NFH	NEW FIRE HYDRANT WITH GATE VALVE
NIC	NOT IN THIS CONSTRUCTION CONTRACT
NWB	FURNISH AND INSTALL NEW WATER GATE VALVE BOX
NWVB	FURNISH AND INSTALL NEW WATER GATE VALVE AND BOX
NWCB	FURNISH AND INSTALL NEW WATER CURB STOP BOX
NWSB	FURNISH AND INSTALL NEW WATER CURB STOP AND BOX
PCD	PERMANENT CHECK DAM
PS	4" PLANTABLE SOIL AND SEED
RCB	RECONSTRUCT TYPE "D" CATCH BASIN, TO CATCH BASIN WITH GUTTER INLET
RCM	R.I.D.O.T. COMMUNICATIONS MANHOLE
RHH	REMOVE, HANDLE, HAUL, TRIM, RESET CURB EDGING, STRAIGHT, CIRCULAR (ALL TYPES)
RLP	RELOCATE LAMP POST
RMB	RELOCATE MAILBOX (BY OTHERS)
RPM	REMOVE PAVEMENT MARKINGS
RRP	RIPRAP PAD (SEE DETAIL)
RRS	REMOVE AND RELOCATE SIGN
RUP	RELOCATE UTILITY POLE (BY OTHERS)
SB	STONE BAFFLE
SBAE	STEEL BEAM BRIDGE CONNECTION APPROACH END (W/O NESTED RAIL)
SBTE	STEEL BEAM BRIDGE CONNECTION TRAILING END (W/NESTED RAIL)
SD–	STRUCTURAL DISPOSITION – SEE CS PAGES OF SPECIFICATION
SF	REMOVE AND STOCKPILE FENCE
SGA	SPECIAL GRADED AGGREGATE
SGC	REMOVE AND STOCKPILE GRANITE CURB
SGR	REMOVE AND STOCKPILE GUARDRAIL
SH	REMOVE AND STOCKPILE HYDRANT
SS	REMOVE AND STOCKPILE SIGN
STS	REMOVE AND STOCKPILE TRAFFIC SIGNAL SYSTEM
TB	CONCRETE THRUST BLOCK
TEP	TIE EXISTING PIPE INTO NEW STRUCTURE
TNP	TIE NEW PIPE INTO EXISTING STRUCTURE
TBT	THRIE BEAM TRANSITION
TBBC	THRIE BEAM BRIDGE CONNECTION
TT	TREE TRIMMING
WCM	4" WOOD CHIP MULCH
4DY	4" EPOXY RESIN PAVEMENT MARKINGS – DOUBLE YELLOW
6W	6" EPOXY RESIN PAVEMENT MARKINGS – WHITE
12W	12" EPOXY RESIN PAVEMENT MARKINGS – WHITE
6WT	6" PREFORMED PATTERNED MARKING (HIGH PERFORMANCE TAPE)
4Y	4" EPOXY RESIN PAVEMENT MARKINGS – YELLOW
6Y	6" EPOXY RESIN PAVEMENT MARKINGS – YELLOW
P.G.L.	PROFILE GRADE LINE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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FEB 3 2016

Kambiz Karbassi
STATE OF RHODE ISLAND
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY
1	6/07	TRB

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

STANDARD PLAN SYMBOLS & STANDARD LEGEND

CHECKED BY ________ DATE ________ SCALE NO SCALE

0000X_V1_002_STDSYM

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			3	21

GENERAL NOTES:

1. ANY DAMAGE TO EXISTING PAVEMENT, BRIDGES, CONDUIT, SIDEWALK, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE TOWN.

2. THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM THE EDGE OF THE TRAVEL LANE SO AS NOT TO CAUSE A SAFETY HAZARD, IN ACCORDANCE WITH SECTION 106.06 OF THE R.I.D.O.T. STANDARD SPECIFICATION, LATEST EDITION.

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE EXISTING CONDITIONS ARE NOT OBLITERATED BEFORE CONTROL POINTS ARE LOCATED AND CONSTRUCTION LAYOUT IS ESTABLISHED. THE CONSTRUCTION LAYOUT SHALL BE PROVIDED IN SUFFICIENT DETAIL, THEREBY ENABLING THE CONTRACTOR TO CONSTRUCT THE PROJECT IN CONFORMITY WITH THE PLANS AND SPECIFICATIONS. SURVEY WILL BE PROVIDED BY THE CONTRACTOR. CONSTRUCTION SHALL NOT COMMENCE UNTIL ALL GROUND CONTROL HAS BEEN ESTABLISHED, TIED DOWN, AND DULY RECORDED IN STANDARD FIELD BOOKS.

4. ASPHALT EMULSION TACK COAT SHALL BE PLACED PRIOR TO PAVEMENT PLACEMENT ON THE CONCRETE BASE OR COLD PLANED PAVEMENT, AND ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS BEEN EXPOSED FOR MORE THAN 30 DAYS. IT SHALL ALSO BE APPLIED TO VERTICAL PAVEMENT FACES BETWEEN ADJOINING PAVEMENT SECTIONS.

5. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND PLACING, AT HIS OWN EXPENSE, PLANTABLE SOIL AND SEED IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED.

6. CLEANING AND SWEEPING OF PAVEMENT WILL INCLUDE REMOVAL OF ALL PAVEMENT DEBRIS PRIOR TO THE PLACEMENT OF EACH BITUMINOUS PAVEMENT LIFT.

7. PRIOR TO INSTALLATION, ALL SIGNS, MOUNTINGS AND LOCATIONS SHALL BE APPROVED OR MODIFIED BY THE TOWN.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS.

9. NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.

10. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT AT THE END OF FINAL PAVING OPERATIONS, FLOW TO EXISTING DRAINAGE STRUCTURES HAS BEEN REESTABLISHED AND THAT NO ISOLATED DEPRESSIONS REMAIN.

11. ALL EMBANKMENTS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 12" (AFTER COMPACTION) AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED. ALSO, EMBANKMENT CONSTRUCTION SHALL CONFORM TO SECTION 202.03.2 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

12. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS STATED IN THE ENVIRONMENTAL APPROVAL ISSUED FOR THE PROJECT FROM THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM). A COPY OF THE PERMIT IS INCLUDED IN THE CONTRACT DOCUMENTS.

13. NO UNPROTECTED CONSTRUCTED FEATURE MAY PROJECT MORE THAN 4 INCHES ABOVE THE FINISHED GRADE OF A TRAVERSABLE SLOPE IN A CLEAR ZONE, e.g. HEADWALL, DRAINAGE INLET, ETC.

DRAINAGE AND EROSION CONTROL NOTES:

1. NO UNDISTURBED AREAS SHALL BE CLEARED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR OR DURING ANY PERIOD OF FULL OR LIMITED WINTER SHUTDOWN. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE TOWN OR ENVIRONMENTAL INSPECTOR, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR HAY MULCH, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODABLE SOIL MUST BE RESTABILIZED WITHIN 5 WORKING DAYS. ANY WORK TO CORRECT PROBLEMS RESULTING FORM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF THE FINAL GRADING.

2. STOCKPILES OF MATERIAL SHALL NOT BE LOCATED WITHIN REGULATED WETLANDS OR BUFFER ZONE AREAS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES OF ERODABLE MATERIAL SHALL ALSO BE SEEDED AND RINGED WITH R.I. STD. 9.1.0 TO STABILIZE.

3. IF THE PLANS INCLUDE SPECIFIC AREAS FOR PLACEMENT OF CONSTRUCTION DEWATERING BASINS AND/OR EQUIPMENT AND MATERIALS STORAGE AND STOCKPILING, AND IF THE CONTRACTOR ELECTS TO UTILIZE ANY OTHER AREAS FOR THESE PURPOSES, THIS SHALL BE APPROVED BY THE TOWN ONLY AFTER OBTAINING ANY NECESSARY PERMITS AND/OR PERMIT MODIFICATIONS FROM THE APPROPRIATE REGULATORY AUTHORITY(IES). ANY PERMITTING REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. JUTE MESH SHALL BE USED TO STABILIZE PLANTABLE SOIL AND/OR LOAM IN ALL DITCHES, ON ALL SLOPES ADJACENT TO WETLANDS AND WETLAND PERIMETERS, AND ON ALL SLOPES WITHIN WATER QUALITY BASINS. JUTE MESH IN DITCHES SHALL EXTEND TO AN ELEVATION 2 FEET ABOVE THE BOTTOM OF THE DITCH.

5. SEEDING ON ALL SLOPES 3 TO 1 OR STEEPER SHALL CONSIST OF THE FOLLOWING APPLICATIONS UNLESS CHANGED IN THE CONTRACT.

   a. SEEDING TYPE I.

   b. ADHESIVE MULCH STABILIZER

6. UNVEGETATED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS OR THROUGH THE INACTIVE WINTER SEASON.

7. PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION (HORIZONTAL AND VERTICAL) OF ALL EXISTING PIPES AND/OR STRUCTURES WHICH ARE TO BE CONNECTED. ANY VARIATION FOUND FROM THE PLANS MUST BE BROUGHT TO THE TOWN'S ATTENTION PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION.

8. ALL DRAINAGE AND UTILITY STRUCTURES WITHIN THE PAVED ROADWAY SHALL BE ADJUSTED TO GRADE WITH THE SURROUNDING PAVEMENT.

9. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL THROUGHOUT THE WORK AREA.

10. CATCH BASIN RIM GRADES NOTED ON PLANS ARE DEPRESSED 0.1' LOWER THAN THE GUTTER GRADE. RIM ELEVATIONS SHOWN ARE FINAL GRADES. THE CONTRACTOR SHALL PLACE FRAMES AND GRATES 0.1' BELOW THE GRADE CONSTRUCTED IN THIS CONTRACT OR AS DIRECTED BY THE ENGINEER.

11. PROVISIONS FOR CLEARING TO ACCESS OUTFALLS DURING THE CLEANING AND FLUSHING OF THE CLOSED DRAINAGE SYSTEM SHALL BE KEPT TO A MINIMUM.

    a. ANY VEGETATIVE CLEARING SHALL BE LIMITED TO BRUSH AND TREES LESS THAN 3" DIAMETER.

    b. NO HEAVY EQUIPMENT MAY ENCROACH UPON VEGETATED PERIMETER OR RIVERBANK WETLANDS AS WELL AS BIOLOGICAL WETLANDS.

12. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL DEVICES FOR OUTLET PROTECTION PRIOR TO CLEANING AND FLUSHING STORM WATER DRAINAGE. EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL FLUSHED SEDIMENTS ARE REMOVED. AT ALL OUTFALL LOCATIONS WHERE PIPES ARE TO BE CLEANED AND FLUSHED, OUTLET PROTECTION (R.I. STD. 9.1.0 OR 9.3.0) SHALL BE INSTALLED TO TRAP SEDIMENTS. THESE SEDIMENTS SHALL THEN BE REMOVED AND DISPOSED OF LEGALLY BEFORE THE OUTLET PROTECTION DEVICES ARE REMOVED. IF OUTLET PROTECTION AT THE OUTFALL IS NOT FEASIBLE, THEN THE OUTLET PIPE OF THE LAST DRAINAGE STRUCTURE TO BE CLEANED SHALL BE PLUGGED TO CAPTURE ALL MATERIALS FLUSHED FROM PIPES. AFTER THE MATERIALS ARE REMOVED FROM THE DRAINAGE STRUCTURE, THE OUTLET SHALL BE UNPLUGGED TO RESUME NORMAL FUNCTIONING.

DRAINAGE AND EROSION CONTROL NOTES (CONTINUED):

13. THE TOE OF ANY FILL SLOPE IS TO REMAIN AT LEAST 1' INSIDE OF ALL EROSION CONTROLS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COVER ANY PORTION OF THE EROSION CONTROL MEASURES WITH MATERIAL. ANY MATERIAL THAT IS PLACED ON ANY EROSION CONTROLS BY THE CONTRACTOR, OR ANY AGENT OF THE CONTRACTOR, SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR, AND ANY NECESSARY REPAIRS TO THE EROSION CONTROLS ACCOMPLISHED.

14. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THOSE AREAS INDICATED ON THE PLANS. CLEARING MAY OCCUR PRIOR TO INSTALLATION OF SUCH CONTROLS, HOWEVER NO GRUBBING, GRADING, FILLING, OR OTHER SOIL DISTURBANCE SHALL OCCUR PRIOR TO INSTALLATION. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS.

15. ALL HAY BALES, SILT FENCE OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP TO MINIMIZE EROSION. TEMPORARY SEED WILL CONFORM TO R.I.D.O.T. STANDARD TEMPORARY SEED MIX.

16. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE TO THE TOWN.

17. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE SPECIFIED IN SUBSECTION L.02.03 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

18. ADDITIONAL EROSION CONTROLS, SHALL BE INSTALLED AS REQUIRED.

UTILITY NOTES:

1. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE. BUILDING SERVICE CONNECTIONS (ELECTRIC, GAS, TELEPHONE, WATER AND SANITARY) ARE NOT SHOWN. CONTRACTOR IS TO ASSUME SERVICES ARE PRESENT TO ALL BUILDINGS.

2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES BOTH UNDERGROUND AND OVERHEAD BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH CHAPTER 39-1.2 OF THE R.I. GENERAL LAWS ENTITLED "EXCAVATION NEAR UNDERGROUND UTILITY FACILITIES", WITH AMENDMENTS EFFECTIVE AS OF NOVEMBER 1, 2009 AND, WHEN NECESSARY, BY CONTACTING THE INDIVIDUAL UTILITY COMPANIES. EXCAVATION SHALL BE IN ACCORDANCE WITH ALL STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY APPLICABLE CITY, TOWN, STATE OR FEDERAL AGENCY. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE DIG SAFE PROGRAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND ENSURE THAT ALL UTILITIES HAVE BEEN MARKED PRIOR TO COMMENCING THEIR WORK. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY, SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE TOWN OR UTILITY.

3. UTILITY SERVICE CONNECTIONS SHALL BE MAINTAINED TO ALL EXISTING FACILITIES AT ALL TIMES.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
IN THE LETTER OF APPROVAL
FEB 16 2016 FILE # 15-0179
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

FEB 3 2016

Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

STANDARD NOTES

CHECKED BY ________ DATE ________ SCALE NO SCALE

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FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			4	21

JOB SPECIFIC LEGEND

DFP	REMOVE AND DISPOSE FLEXIBLE PAVEMENT
DT	CUTTING AND DISPOSING OF ISOLATED TREES AND STUMPS (4"–24")
P	4" MODIFIED CLASS 12.5 HOT MIX ASPHALT SURFACE COURSE TO BE PLACED IN TWO (2) 2" LIFTS 12" GRAVEL BORROW SUBBASE COURSE
S–1	CUTTING AND MATCHING ASPHALT, REFER TO R.I. STD. 47.1.1
— · · — · · —	200' RIVERBANK WETLAND
7.3.2M–C	6'–0" GRANITE TRANSITION CURB MODIFIED (CIRCULAR)
7.3.2M–S	6'–0" GRANITE TRANSITION CURB MODIFIED (STRAIGHT)
8.4.3M	PAVED WATERWAY MODIFIED

JOB SPECIFIC GENERAL NOTES:

1. ANY SUBCONTRACTOR EMPLOYED BY THE CONTRACTOR ON THIS PROJECT SHALL WORK WITHIN THE SAME PROTECTED WORK AREAS AS THE CONTRACTOR.
2. ALL SURVEY FIELD BOOKS AND ELECTRONIC DATA SHALL BE SUBMITTED TO THE TOWN UPON COMPLETION OF THE PROJECT.

JOB SPECIFIC DRAINAGE AND EROSION CONTROL NOTES:

1. THE DRAINAGE SYSTEM SHALL BE INSPECTED AND CLEANED, AS REQUIRED, AFTER THE FINAL RIDING SURFACE HAS BEEN APPLIED AND PRIOR TO ACCEPTANCE OF THE OVERALL PROJECT. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS PROVISION; IT SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK.

NOTES TO CONTRACTOR:

1. ALL WORK WITHIN THE CLEAR RIVER, AS DESIGNATED ON THE PLANS, SHALL BE CONDUCTED ONLY DURING LOW FLOW PERIODS.
2. THE CONTRACTOR SHALL NOT AT ANY TIME, PLACE CONSTRUCTION EQUIPMENT WITHIN THE CLEAR RIVER.

...AGEMENT
WATER RESOURCES
WETLANDS PROGRAM
...CONDITIONS
...THE LETTER OF APPROVAL
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JOB SPECIFIC
PLAN SYMBOLS, LEGEND AND NOTES

CHECKED BY ________ DATE ________ SCALE NO SCALE

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FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			5	21

ALL REFERENCES IN THESE GENERAL NOTE SHEETS AND THROUGHOUT THE CONTRACT DRAWINGS TO THE RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SHALL EXCLUDE THE METHOD OF MEASUREMENT SECTION AND THE BASIS OF PAYMENT SECTION FOR THIS PROJECT.

GENERAL NOTES

1. ALL CONSTRUCTION INDICATED ON THESE PLANS SHALL BE IN ACCORDANCE WITH:
   - THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AMENDED AUGUST 2013, WITH ALL REVISIONS (RI STANDARD SPECIFICATIONS).
   - THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 3RD EDITION, 2010 INCLUDING THE LATEST INTERIM REVISIONS.
2. DIMENSIONS, STATIONS, AND ELEVATIONS ARE SHOWN TO THE NEAREST ONE-HUNDREDTH OF A FOOT OR ONE-EIGHTH OF AN INCH, EXCEPT STRUCTURAL STEEL DIMENSIONS WHICH ARE TO THE NEAREST ONE-SIXTEENTH OF AN INCH.
3. ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
4. COORDINATES USED ON THESE PLANS ARE BASED ON THE STATEWIDE COORDINATE SYSTEM, THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
5. TOPOGRAPHIC CONDITIONS WERE OBTAINED FROM FIELD SURVEY. ACCURACY OF VERTICAL TOPOGRAPHY IS WITHIN *"ONE-HALF OF A FOOT"*.
6. FOR BENCH MARKS AND TIES SEE PLANS.
7. ANGLES ARE SHOWN TO THE NEAREST SECOND.
8. ALL FOUNDATIONS SHALL BE APPROVED BY THE ENGINEER AS TO DIMENSIONS, ELEVATIONS, AND SUITABILITY OF MATERIAL BEFORE THE PLACING OF THE REINFORCED SOIL FOUNDATION (RSF).
9. ALL WORKING POINTS ARE SHOWN AT THE CENTERLINES OF BEARINGS OF GRS ABUTMENTS.

DESIGN DATA

1. DESIGN SPECIFICATIONS

- THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, 2014 , INCLUDING ALL INTERIM REVISIONS TO DATE.
- THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AMENDED AUGUST 2013, WITH ALL REVISIONS (RI STANDARD SPECIFICATIONS).

2. LOAD MODIFIERS

THE LOAD MODIFIERS FOR THIS PROJECT ARE AS FOLLOWS:

- THE LOAD MODIFIER FOR DUCTILITY SHALL BE TAKEN AS 1.0 FOR ALL LIMIT STATES.
- THE LOAD MODIFIER FOR REDUNDANCY SHALL BE TAKEN AS 1.0 .
- THE LOAD MODIFIER FOR OPERATIONAL IMPORTANCE SHALL BE TAKEN AS 1.0.

3. LOAD FACTORS

ALL LOAD FACTORS SHALL BE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EXCEPT AS MODIFIED BELOW.

- THE LOAD FACTOR FOR TEMPERATURE GRADIENT SHALL BE TAKEN AS ZERO FOR ALL LIMIT STATES.
- THE LOAD FACTOR FOR LIVE LOAD FOR THE EXTREME EVENT I SHALL BE TAKEN AS ZERO.
- THE LOAD FACTOR FOR DEAD LOAD FOR THE EXTREME EVENT I AND EXTREME EVENT II SHALL BE TAKEN AS 1.0
- THE LOAD FACTOR FOR SETTLEMENT FOR ALL LIMIT STATES SHALL BE TAKEN AS 1.0

4. LIVE LOADS

- THE DESIGN VEHICULAR LIVE LOAD SHALL BE THE HL-93 DESIGNATION ADJUSTED FOR DYNAMIC LOAD ALLOWANCE AND MULTIPLE PRESENCE FACTOR.

5. FOUNDATION DESIGN DATA

THE FACTORED BEARING RESISTANCE FOR THE BEARING MATERIAL ARE AS FOLLOWS:

		FACTORED BEARING RESISTANCE (KSF)		
LOCATION	TYPE OF BEARING MATERIAL	STRENGTH LIMIT STATE	EXTREME LIMIT STATE	SERVICE LIMIT STATE
GRS ABUTMENT	NATURAL SOILS FINE TO COARSE	10.00	N/A	5.00

BRIDGE PAVEMENT NOTE

1. BRIDGE PAVEMENT SHALL CONSIST OF 2 LAYERS OF MODIFIED CLASS 9.5 HMA OVER PREFORMED WATERPROOFING MEMBRANE.

BRIDGE ERECTION NOTES

1. CONTRACTOR SHALL BE AWARE OF THE OVERHEAD WIRES WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS WHEN WORKING AROUND THESE WIRES AND COMPLY WITH ALL CURRENT OSHA SAFETY AND UTILITY COMPANY REQUIREMENTS.
2. THE CAPACITY OF THE CRANE AND ALL LIFTING AND CONNECTING DEVICES SHALL BE ADEQUATE FOR 125 PERCENT OF THE TOTAL PICK LOAD INCLUDING SPREADERS AND OTHER MATERIALS. THIS FACTOR OF SAFETY SHALL BE IN ADDITION TO ALL MANUFACTURERS' PUBLISHED FACTORS OF SAFETY.

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FEB 3 2016

Kambiz Karbassi
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No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
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BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
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BRIDGE GENERAL NOTES
SHEET 1

CHECKED BY _____ DATE _____ SCALE AS SHOWN

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MATERIALS

REINFORCING STEEL:

- AASHTO DESIGNATION M 31, GRADE 60
- GALVANIZED COATING ASTM A767, CLASS 1
- ASTM DESIGNATION A706, GRADE 60

PRESTRESSING STEEL:

- UNCOATED SEVEN WIRE LOW-RELAXATION STRAND, AASHTO DESIGNATION M 203, GRADE 270
- UNCOATED HIGH STRENGTH STEEL BAR, AASHTO DESIGNATION M 275

CONCRETE STRENGTHS:

- CLASS HP ¾" f'c=8,000 PSI

  ALL PRECAST PRESTRESSED CONCRETE

- CLASS HP ¾" f'c=5,000 PSI

  CAST IN PLACE BRIDGE DECK & SUPERSTRUCTURE SAFETY CURB

CONCRETE NOTES

1. CLASSES OF CONCRETE SHALL BE HIGH PERFORMANCE CLASS HP AS DESCRIBED IN THE RI STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS OF THE SPECIFICATIONS. REFER TO THE "MATERIAL" NOTES FOR CLASSES OF CONCRETE SPECIFIED FOR VARIOUS COMPONENTS.
2. ALL PORTLAND CEMENT CONCRETE SHALL BE AIR-ENTRAINED.
3. ALL REINFORCING STEEL SHALL BE GALVANIZED. ALL WIRE TIES AND MISCELLANEOUS HARDWARE USED FOR PLACEMENT OF GALVANIZED REINFORCING SHALL ALSO BE GALVANIZED (SEE MATERIALS SECTION).
4. ALL CRITICAL LAP SPLICES SHALL BE AS SHOWN ON THE PLANS. ALL SPLICES NOT SHOWN ON THE PLANS SHALL BE LAPPED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR CLASS C LAP SPLICES.
5. UNLESS OTHERWISE INDICATED ON THE PLANS, ALL MAIN REINFORCING BARS SHALL HAVE THE FOLLOWING MINIMUM COVER:

CONCRETE CAST AGAINST OR PERMANENTLY EXPOSED TO EARTH (FOOTINGS)	3"
ALL OTHER BARS	2"

   COVER TO TIES AND STIRRUPS MAY BE 0.5 INCH LESS THAN THE ABOVE VALUES SPECIFIED FOR MAIN REINFORCING, BUT IN NO CASE LESS THAN 1.5 INCHES.
6. ALL ANCHOR BOLTS SHALL BE ASTM DESIGNATION A 307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO DESIGNATION M 232 OR METALIZED IN ACCORDANCE WITH SECTION M.05.
7. ALL ANCHOR BOLTS SHALL BE SET PRIOR TO PLACEMENT OF CONCRETE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.
8. HORIZONTAL CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON PLANS WILL NOT BE PERMITTED.
9. ALL EXPOSED EDGES AND REENTRANT CORNERS NOT OTHERWISE DETAILED ON THE PLANS SHALL HAVE A MINIMUM ¾" CHAMFER.
10. UNLESS OTHERWISE NOTED ON THE PLANS, JOINT FILLER IS TO BE A PREFORMED, NON-EXPANSIVE, NON-EXTRUDING TYPE IN ACCORDANCE WITH SECTION M.02.11.1 OF THE RI STANDARD SPECIFICATIONS.
11. PLACEMENT, FINISHING AND CURING OF BRIDGE DECK CONCRETE SHALL BE IN ACCORDANCE WITH SECTION 814 OF THE RI STANDARD SPECIFICATIONS, EXCEPT THAT, THE MINIMUM WET CURE PERIOD SHALL BE EXTENDED TO 14 DAYS.
12. IN ACCORDANCE WITH THE RI STANDARD SPECIFICATIONS, ALL METAL TIES OR ANCHORAGES WHICH ARE REQUIRED FOR CONCRETE FORMWORK SHALL BE SO CONSTRUCTED THAT THEY CAN BE REMOVED TO AT LEAST TWO INCHES BELOW THE EXPOSED SURFACE OF THE CONCRETE WITHOUT CAUSING DAMAGE TO THE CONCRETE SURFACE. SNAP TIES MAY BE USED ONLY IF APPROVED BY THE ENGINEER. IF THE CONTRACTOR PROPOSES TO USE THEM, A CATALOG CUT AND OTHER NECESSARY INFORMATION MUST BE SUBMITTED TO THE ENGINEER TO DEMONSTRATE THAT THE TIES WILL SNAP-OFF FAR ENOUGH INTO THE CONCRETE TO ALLOW FOR PROPER PATCHING. SNAP TIES MUST PROVIDE ADEQUATE STRENGTH TO SUPPORT THE FORMS. ALL CAVITIES SHALL BE FILLED WITH AN APPROVED CEMENT MORTAR MEETING THE REQUIREMENTS OF ASTM C 928.

PRESTRESSED CONCRETE NOTES

1. THE FABRICATION OF ALL PRESTRESSED ELEMENTS SHALL BE IN ACCORDANCE WITH SECTION 809 "PRECAST/PRESTRESSED CONCRETE MASONRY" OF THE RI STANDARD SPECIFICATIONS.
2. ANY PRECAST MANUFACTURING PLANT FURNISHING PRECAST PRESTRESSED BRIDGE MEMBERS MUST BE CERTIFIED BY THE PRECAST PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION PROGRAM. THE CERTIFICATION SHALL BE AS A MINIMUM IN THE B3 CATEGORY.
3. BOX BEAMS AND SLABS ARE DETAILED WITH NOMINAL DIMENSIONS (SUCH AS 35½ ") AND NOMINAL ½" JOINTS BETWEEN UNITS TO ACCOUNT FOR CONSTRUCTION TOLERANCES AND TO PROVIDE FOR AN EXACT OVERALL STRUCTURE WIDTH.
4. LIFTING DEVICES ARE THE RESPONSIBILITY OF THE PRECASTER.
5. THE CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 8000 PSI. THE MINIMUM REQUIRED COMPRESSIVE STRENGTH AT STRESS TRANSFER SHALL NOT BE LESS THAN 5500 PSI.
6. PRESTRESSING STRANDS SHALL CONSIST OF UNCOATED HIGH STRENGTH SEVEN WIRE LOW-RELAXATION STRANDS HAVING A NOMINAL DIAMETER OF 0.6" CONFORMING TO THE REQUIREMENTS OF AASHTO DESIGNATION M 203 GRADE 270.
7. LATERAL TIES SHALL CONSIST OF UNCOATED HIGH STRENGTH SEVEN WIRE LOW-RELAXATION STRANDS HAVING A NOMINAL DIAMETER OF 0.6" CONFORMING TO THE REQUIREMENTS OF AASHTO DESIGNATION M 203 GRADE 270. CORROSION PROTECTION OF THE LATERAL TIES SHALL BE AS DETAILED ON THE DRAWINGS.
8. NON-PRESTRESSED REINFORCEMENT SHALL CONFORM TO AASHTO DESIGNATION M 31 GRADE 60 AND SHALL BE GALVANIZED.
9. ALL EXPOSED CORNERS SHALL BE CHAMFERED ¾ UNLESS OTHERWISE NOTED.
10. ANY STRUCTURAL MEMBERS DAMAGED DURING FABRICATION, SHIPPING OR ERECTION, SUCH THAT THEIR STRUCTURAL INTEGRITY IS COMPROMISED, SHALL BE REJECTED AND REPLACED AT THE CONTRACTOR'S OWN EXPENSE. THE ENGINEER SHALL BE THE SOLE JUDGE IN DETERMINING THE STRUCTURAL INTEGRITY OF DAMAGED PRESTRESSED MEMBERS. ANY DAMAGE THAT IS NOT STRUCTURAL IN NATURE SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE TOWN.
11. DURING HANDLING, THE BEAMS MUST BE MAINTAINED IN AN UPRIGHT POSITION AT ALL TIMES AND MUST BE PICKED UP ONLY BY MEANS OF APPROVED LIFTING DEVICES AT THEIR APPROVED SUPPORT POINTS.
12. DIMENSIONAL TOLERANCES SHALL NOT EXCEED THOSE RECOMMENDED IN THE LATEST EDITION OF THE PCI "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF PRECAST AND PRESTRESSED CONCRETE PRODUCTS".
13. THE EXTERIOR FACE OF FASCIA BEAMS SHALL RECEIVE A RUBBED FINISH (IN FIELD OR IN THE PLANT) IN ACCORDANCE WITH THE RI STANDARD SPECIFICATIONS.
14. THE TOP SURFACES OF THE PRESTRESSED SLABS, SHALL HAVE A RAKE FINISH AS INDICATED ON THE PLANS.
15. ALL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER IN SUFFICIENT TIME TO PERMIT CAREFUL CHECKING.
16. ALL PRESTRESSING STEEL AND GALVANIZED REINFORCING BARS SHALL BE SECURELY TIED TO PREVENT DISLOCATION. TIES USED FOR THE GALVANIZED REINFORCING STEEL SHALL ALSO BE GALVANIZED.
17. THE DETAILS OF ALL INSERTS, ANCHORS, AND ANY OTHER ITEMS REQUIRED TO BE CAST INTO THE PRECAST PRESTRESSED UNITS (WHETHER DETAILED ON THE CONTRACT DRAWINGS OR PROVIDED FOR THE CONTRACTOR'S CONVENIENCE) SHALL BE SHOWN ON THE SHOP DRAWINGS. PRECAST UNITS SHALL NOT BE FIRED OR DRILLED INTO FOR ATTACHMENT PURPOSES. ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232.
18. THE NON-SHRINK GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI AFTER 28 DAYS AS DETERMINED BY TESTING UNDER ASTM DESIGNATION C-109 AND SHALL NOT EXHIBIT ANY MEASURABLE DECREASE IN VOLUME AFTER CURING. THE CONTRACTOR SHALL STRICTLY FOLLOW THE MANUFACTURER'S RECOMMENDATIONS. GROUTING SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILS SHOWN. THE GROUT SHALL BE ON THE RIDOT APPROVED MATERIAL LIST.
19. THE ENDS OF BEAMS SHALL BE VERTICAL AFTER ALL DEAD LOADS HAVE BEEN PLACED.
20. HANDHELD VIBRATORS SHALL BE EQUIPPED WITH RUBBER TIPPED HEADS.
21. FOR SIZE AND LOCATION OF ANCHOR BOLTS, SEE DRAWINGS.
22. NO TRAFFIC OR EQUIPMENT SHALL BE PERMITTED ON THE STRUCTURE PRIOR TO THE POST TENSIONING OPERATION AND UNTIL THE GROUT HAS ATTAINED THE 28 DAY COMPRESSIVE STRENGTH.

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NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

BRIDGE GENERAL NOTES
SHEET 2

CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_006_STDBRNOT002

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			7	21

A.P.140 LOT 31
N/F JOHN & SUSAN KARBOWSKI, TE
M.A. 203 CROSS STREET
SEEKONK, MA 02771
200' RIVERBANK WETLAND
DRILLHOLE SET
EL. 387.08
℄ BRG. SOUTH ABUTMENT
℄ BRG. NORTH ABUTMENT
40'-7" SPAN LENGTH ALONG BRIDGE ℄
PLACED R-5 RIPRAP
LIMIT OF DISTURBANCE
A.P.140 LOT 30
N/F WAYNE A. BOLTON
163 LAUREL RIDGE AVENUE
M.A. 25 PINE HILL ROAD
JOHNSTON, RI 02919
LAUREL RIDGE AVENUE
LIMIT OF CONSTRUCTION
STA. 1+00
PK SET
EL. 396.93
℄ OF CONSTRUCTION
P.I. STA. 1+56.75
170°54'28"
60°38'46"
8'-0" RSF (TYP.)
W.P. #1
STA. 1+90.21
FACE OF CURB
W.P. #2
STA. 2+30.79
SAW & SEAL (TYP.)
NORTH ROAD
SAFETY WALK
13'-2"
2'-0"
LIMIT OF CONSTRUCTION
STA. 3+50±
PK SET
EL. 406.84
CUT & MATCH PAVEMENT (TYP.)
BENCH MARK
FRONT BONNET
BOLT ON HYDRANT
ELEVATION=411.01
4'-7½"± O.C. ALONG CURVED SHOULDER
EDGE OF PAVEMENT
R=70.00'
R=40.00'
12"HDPE
INV.=391.80
12"HDPE
INV.=393.43
12"CMP
INV.=390.12
GROVE STREET
DRILLHOLE SET
EL. 387.04
EXIST. WINGWALL TO REMAIN (TYP.)
CLEAR RIVER
ERIN LANE
A.P.140 LOT 11
N/F THOMAS M. & KELLY A. TAYLOR
43 NORTH ROAD
PASCOAG, RI 02859

GENERAL PLAN

SCALE: 1"=10'

NOTE:
REMOVE AND DISPOSE DEBRIS (I.E. FALLEN TREE LIMBS, TIRES, AND SIMILAR) FROM RIVER WITHIN LIMIT OF DISTURBANCE.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
FEB 16 2016 FILE # 15-019
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
FEB 3 2016

Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

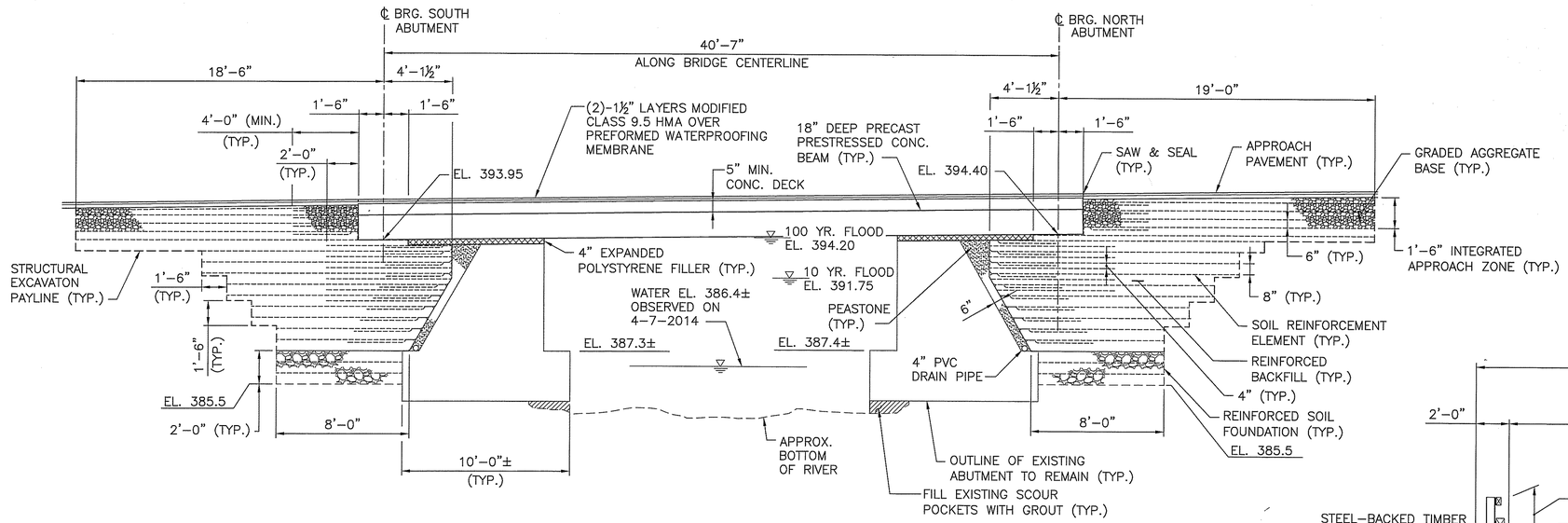
BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

GENERAL PLAN

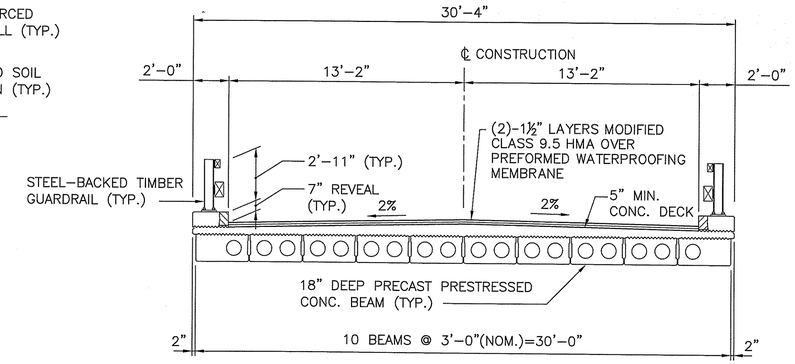
CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_007_BGENERAL

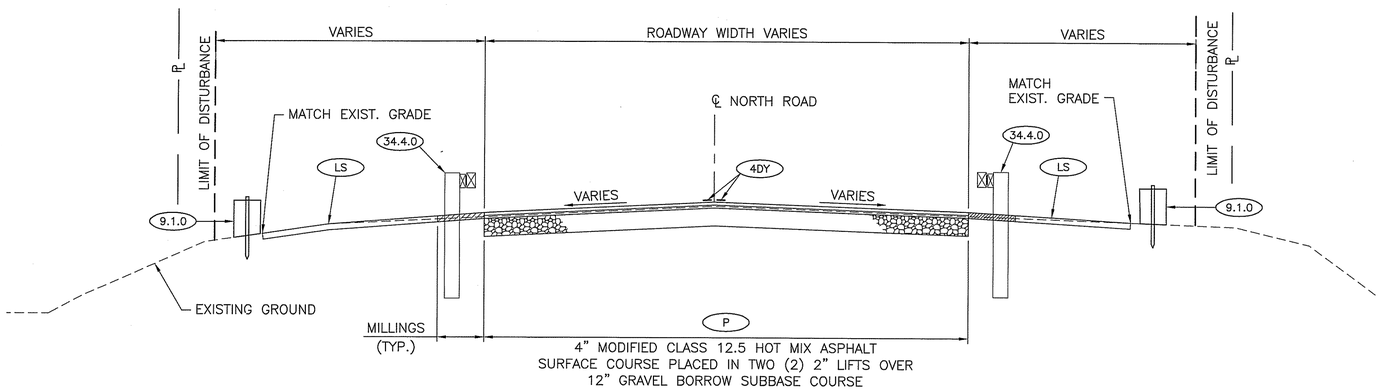
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			8	21



LONGITUDINAL SECTION
SCALE: 1/4"=1'–0"



TRANSVERSE SECTION
SCALE: 1/4"=1'–0"



TYPICAL APPROACH SECTION
SCALE: 1/4"=1'–0"

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 16 2016 FILE # 15-0179
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

FEB 3 2016

REVISIONS		
NO.	DATE	BY

Kambiz Karbassi
STATE OF RHODE ISLAND
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

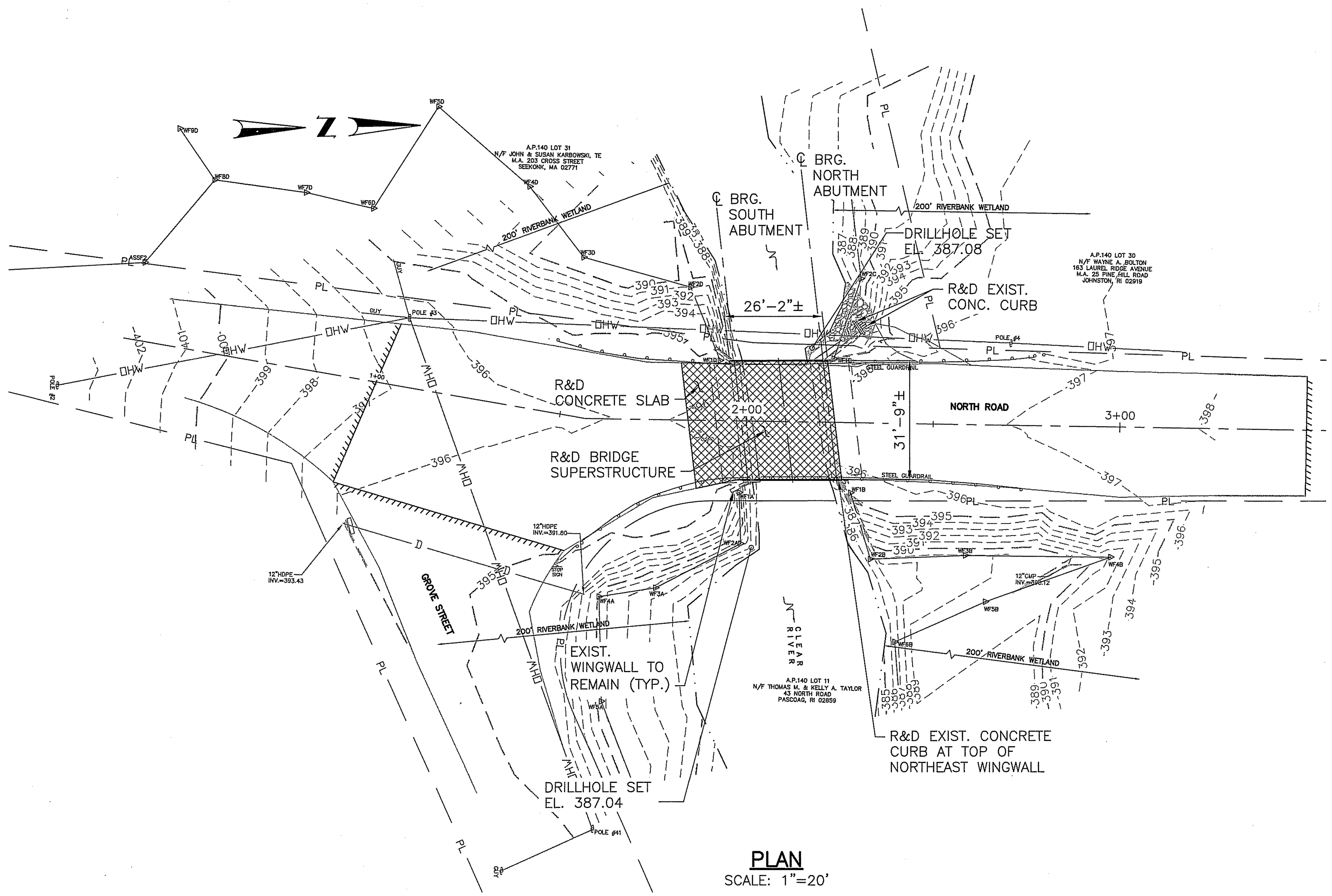
TYPICAL SECTIONS

CHECKED BY _____ DATE _____ SCALE AS SHOWN

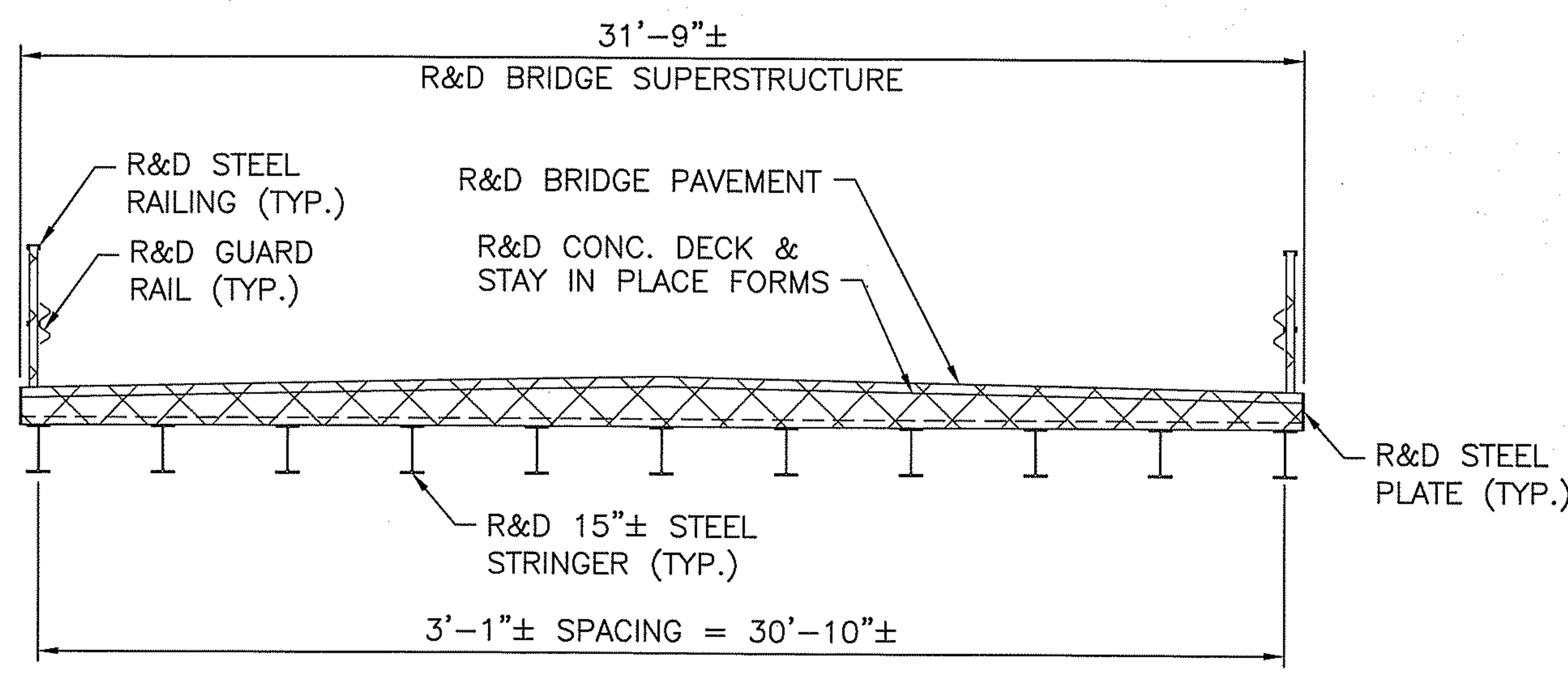
0000X_V1_008_BTYPICAL

P:\14000\14000.00 North Road Bridge Replacement_Drawings\Shortcut_Current_Drawings\0000X_V_008_BTYPICAL.dwg, 12/1/2015 11:05:39 AM, PAF

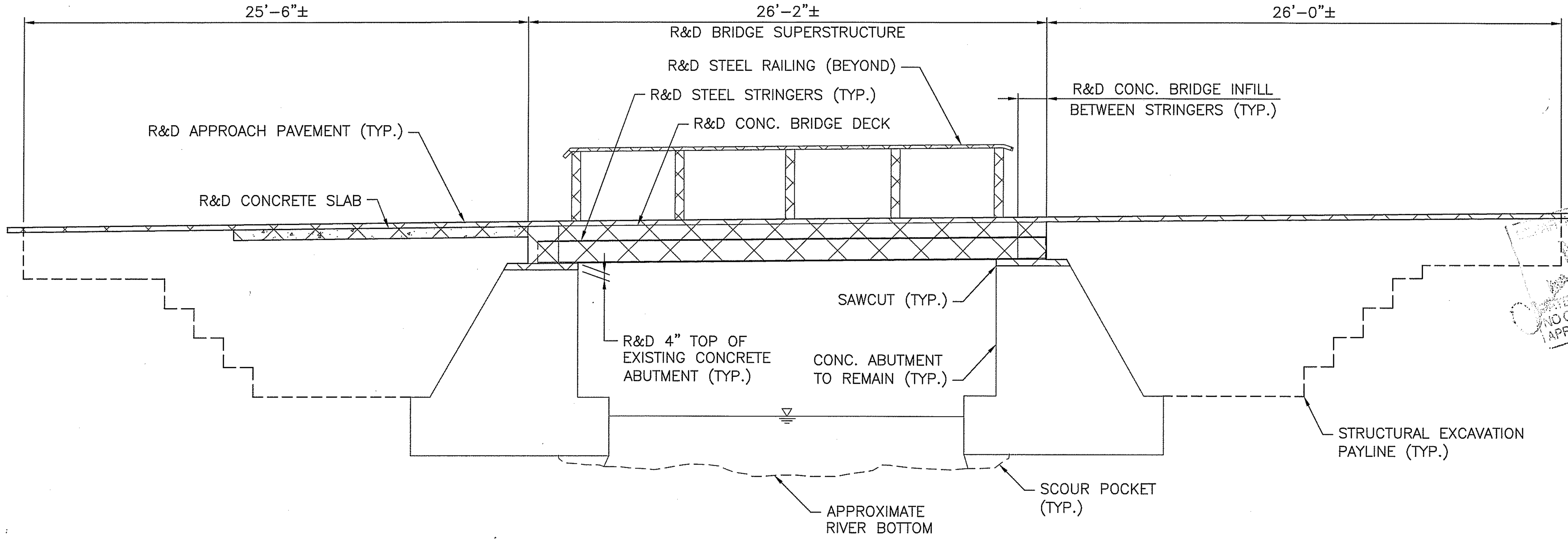
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			9	21



PLAN
SCALE: 1"=20'



TRANSVERSE SECTION
SCALE: ¼"=1'-0"



LONGITUDINAL SECTION
SCALE: ¼"=1'-0"

DEMOLITION NOTES:

1. PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES (INCLUDING THROUGH THE "DIG-SAFE" PROGRAM) TO ENSURE THAT ALL UTILITIES, BOTH UNDERGROUND AND OVERHEAD, HAVE BEEN MARKED. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE "DIG-SAFE" PROGRAM. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY, SHALL BE REPAIRED OR REPLACED (AS DEEMED APPROPRIATE BY THE TOWN OR THE IMPACTED UTILITY COMPANY) AT NO ADDITIONAL COST TO THE TOWN.
2. PLANS AND DETAILS SHOWN ON THE DEMOLITION PLANS ARE ILLUSTRATIVE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE AND ASSESS THE EXISTING CONDITIONS AND SCOPE OF THE DEMOLITION WORK REQUIRED PRIOR TO SUBMITTING BIDS.
3. ALL ITEMS NOT REFERENCED FOR MODIFICATION WILL BE "EXISTING TO REMAIN".
4. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE PORTIONS OF THE EXISTING STRUCTURE DESIGNATED TO REMAIN. IN ADDITION, THE CONTRACTOR SHALL ENSURE THAT THE REMOVAL AND DISPOSAL OPERATIONS DO NOT CAUSE DAMAGE TO OTHER EXISTING STRUCTURES, PROPERTIES, UTILITIES, AND/OR ROADWAYS. IF ANY DAMAGE DOES OCCUR, BY THE CONTRACTOR'S OPERATIONS, THE CONTRACTOR WILL BE REQUIRED TO REPAIR OR REPLACE THE DAMAGED PORTION, AS DETERMINED BY THE TOWN, AT THE CONTRACTOR'S EXPENSE.
5. THE EXISTING CONCRETE SUBSTRUCTURES MAY CONTAIN STEEL REINFORCEMENT. ALL PROTRUDING REINFORCEMENT SHALL BE CUT FLUSH TO THE LIMIT OF REMOVAL.
6. THE CONTRACTOR SHALL PROVIDE COMPLETE PROTECTION TO THE AREA OF THE CLEAR RIVER DIRECTLY BELOW THE BRIDGE TO ENSURE THAT NO DEBRIS AND/OR OTHER FOREIGN MATERIAL FALLS INTO THE CLEAR RIVER.
7. UNLESS OTHERWISE NOTED, ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES FRESHWATER WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL FEB 16 2016 FILE # 15-0179 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF BURRILLVILLE, RHODE ISLAND

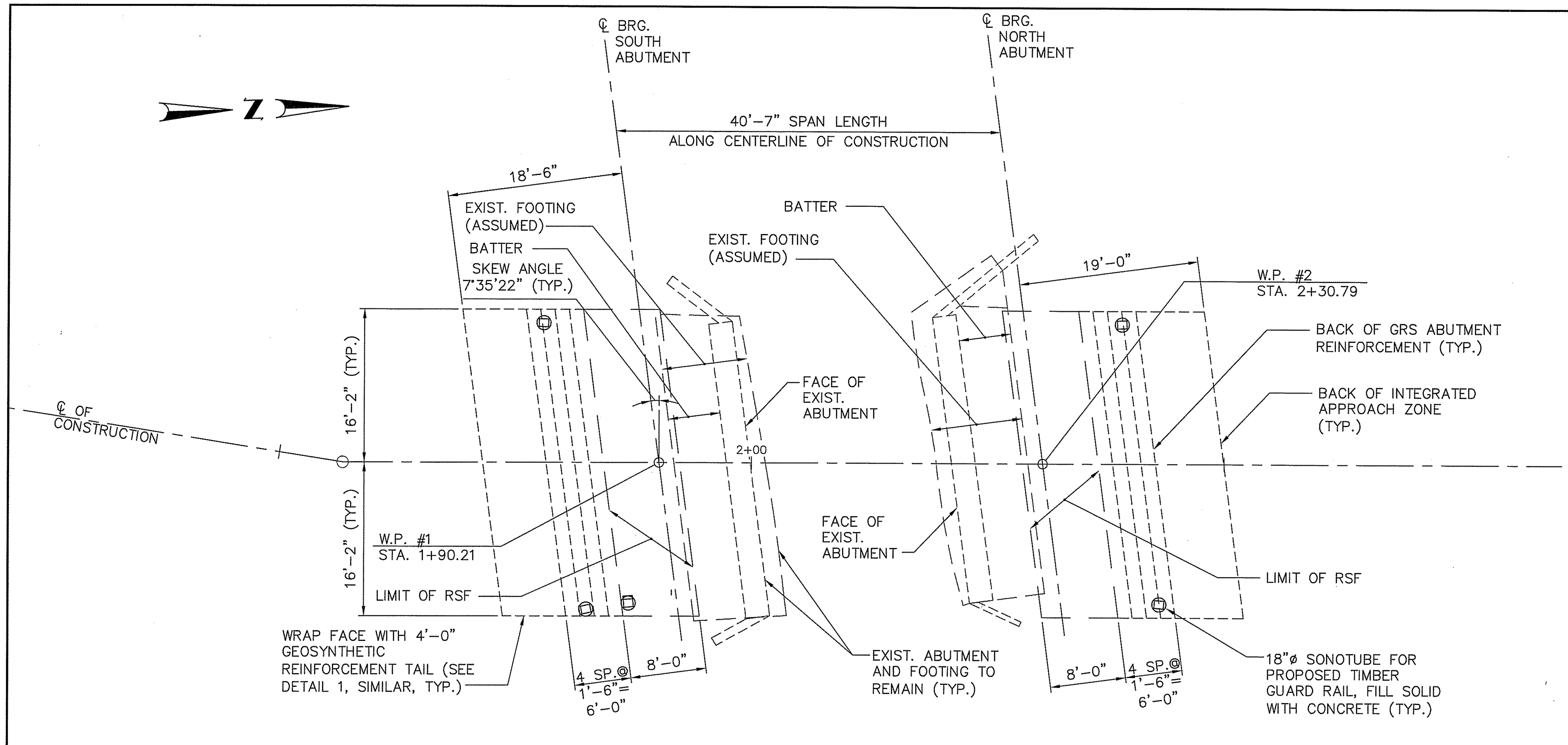
BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

DEMOLITION PLAN & SECTIONS

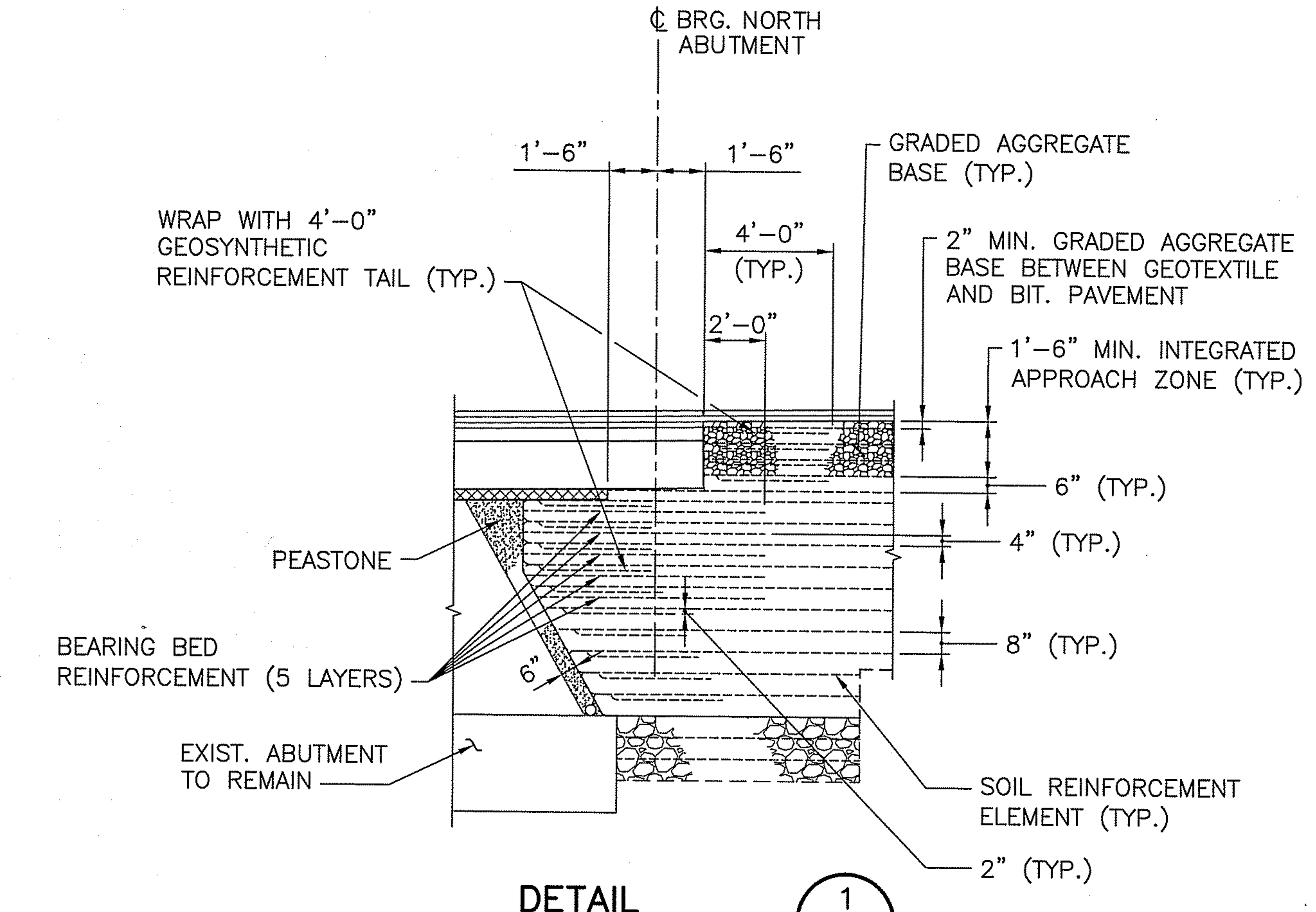
CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_009_DEMO

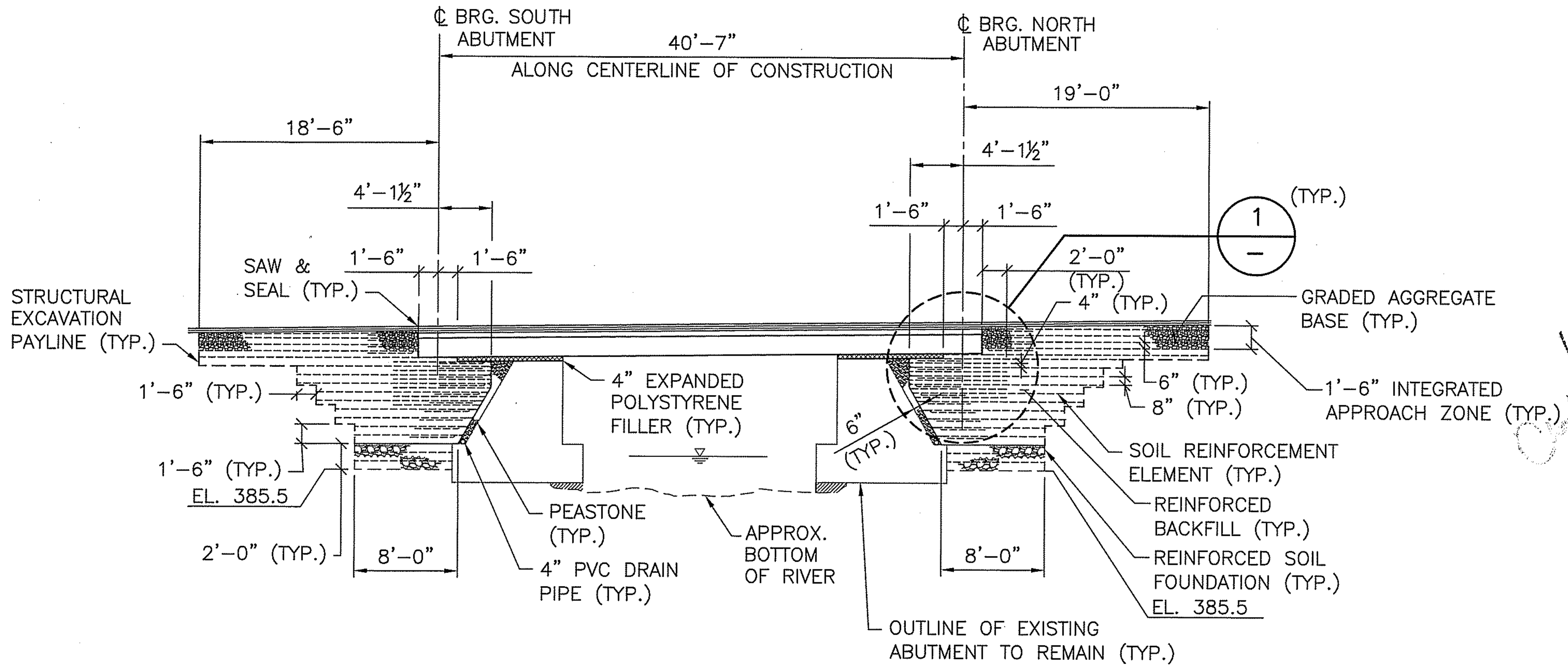
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			10	21



GRS PLAN
SCALE: 1/8"=1'-0"



DETAIL 1
SCALE: 1/4" = 1'-0'



GRS LONGITUDINAL SECTION
SCALE: 1/8"=1'-0"

NOTE:
UNLESS NOTED OTHERWISE, DIMENSIONS ARE SQUARE TO CENTERLINE OF BEARING.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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DATED FEB 16 2016 FILE # 15-0179
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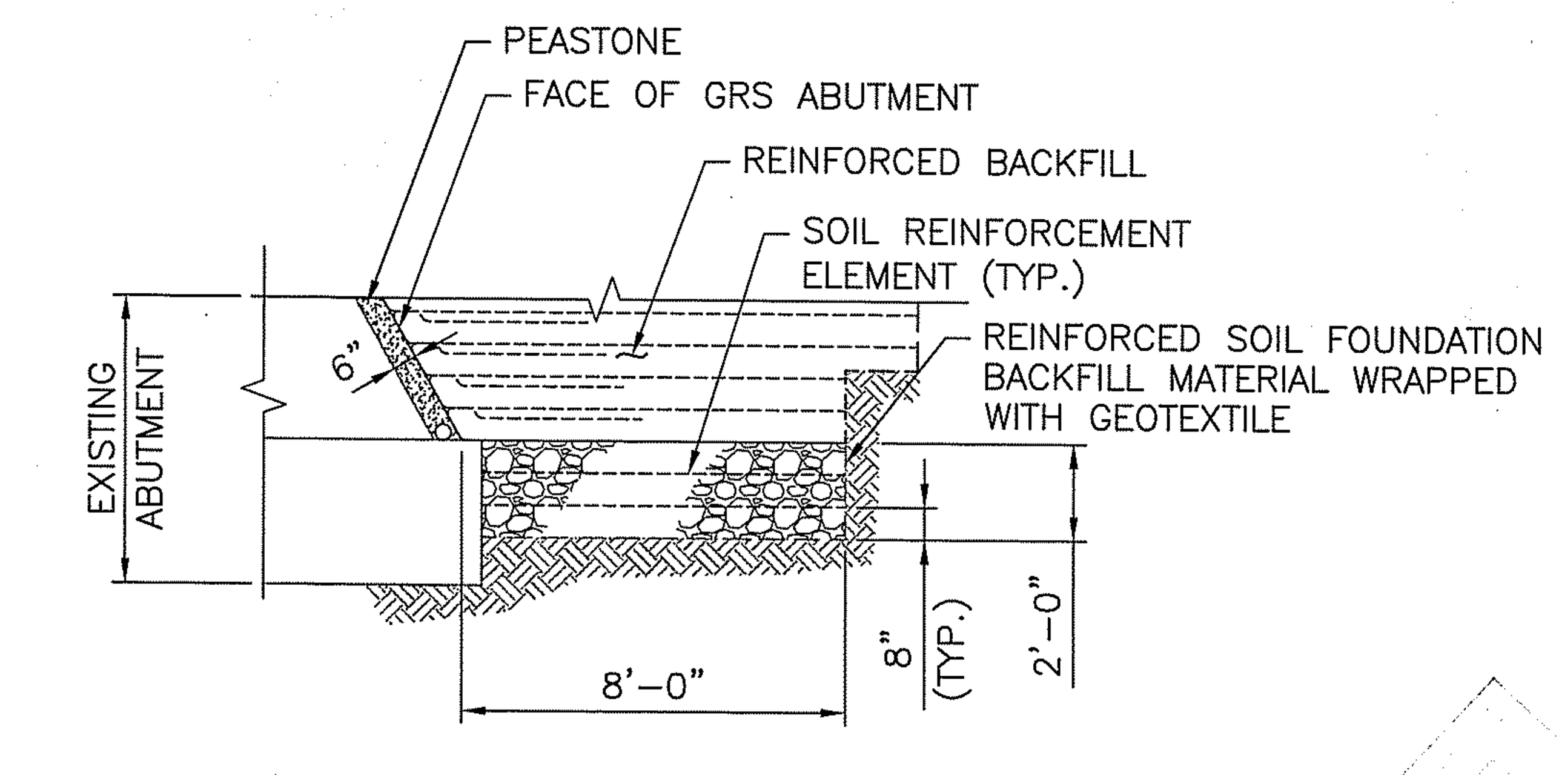

REINFORCED SOIL FOUNDATION DETAIL
SCALE: 1/4" = 1'-0'

FEB 3 2016

REVISIONS		
NO.	DATE	BY

Kambiz Karbassi
STATE OF RHODE ISLAND No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

GRS ABUTMENT PLAN
SECTIONS & DETAILS

CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_010_GRSWALL

LOCATION PLAN
SCALE: 1"=10'

CURVE TABLE

CURVE I.D.	RADIUS	Δ	TANGENT	LENGTH
A	40.00'	45°26'44"	16.75'	31.73'
B	70.00'	11°25'16"	7.00'	13.95'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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DATED FEB 16 2016 FILE # 15-0159
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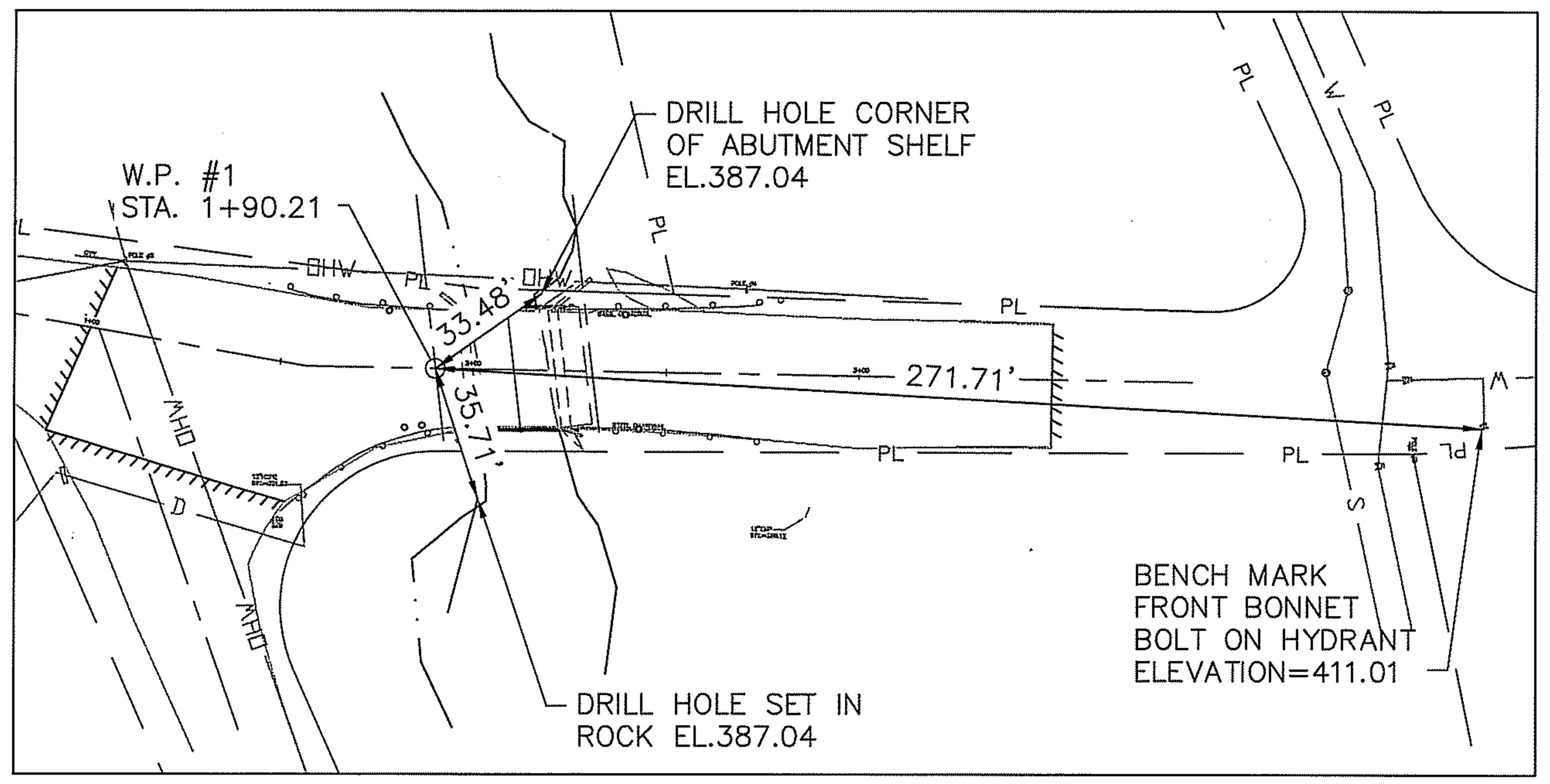
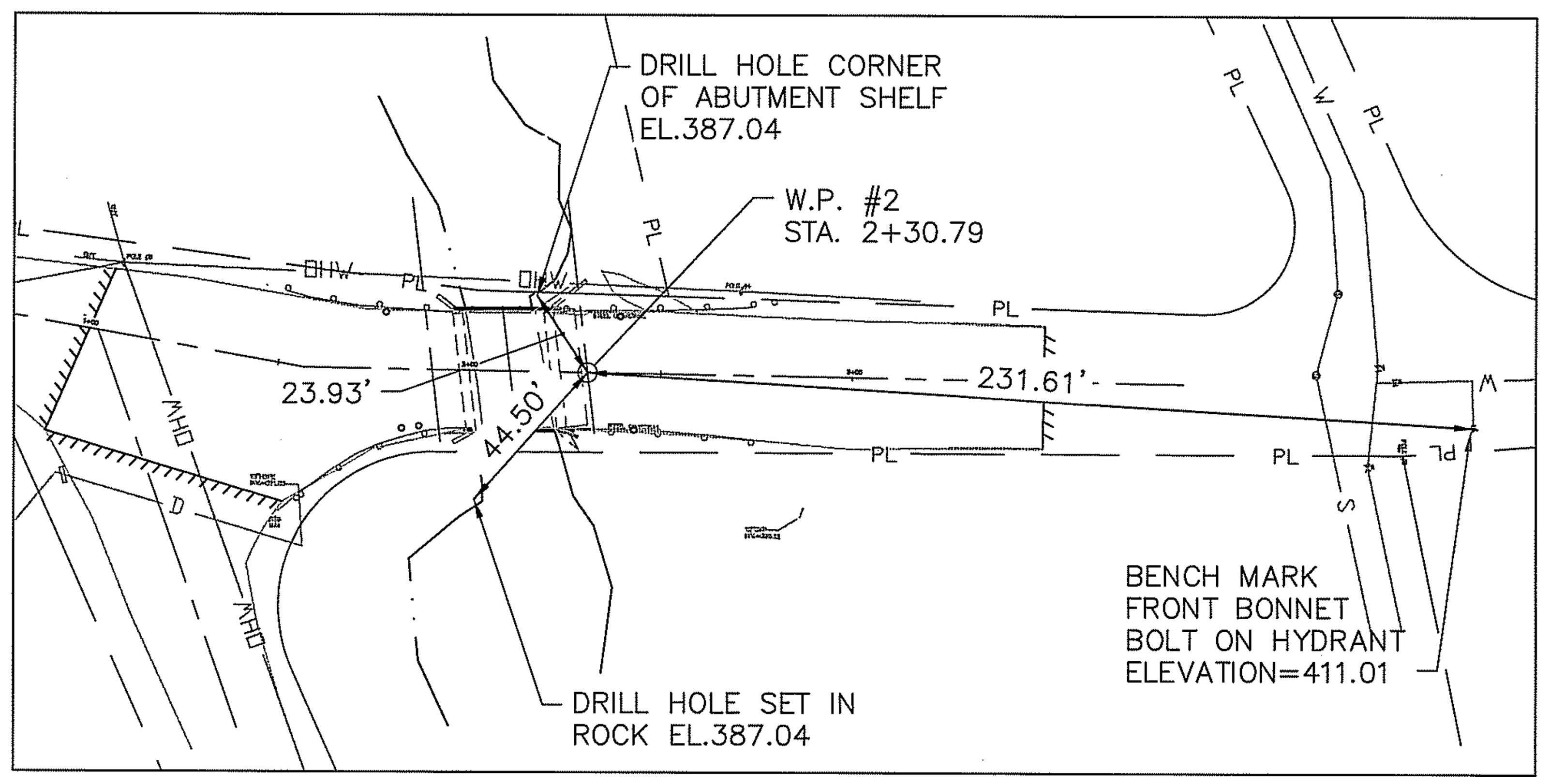
FEB 3 2016





SURVEY TIE PLAN
NOT TO SCALE

Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

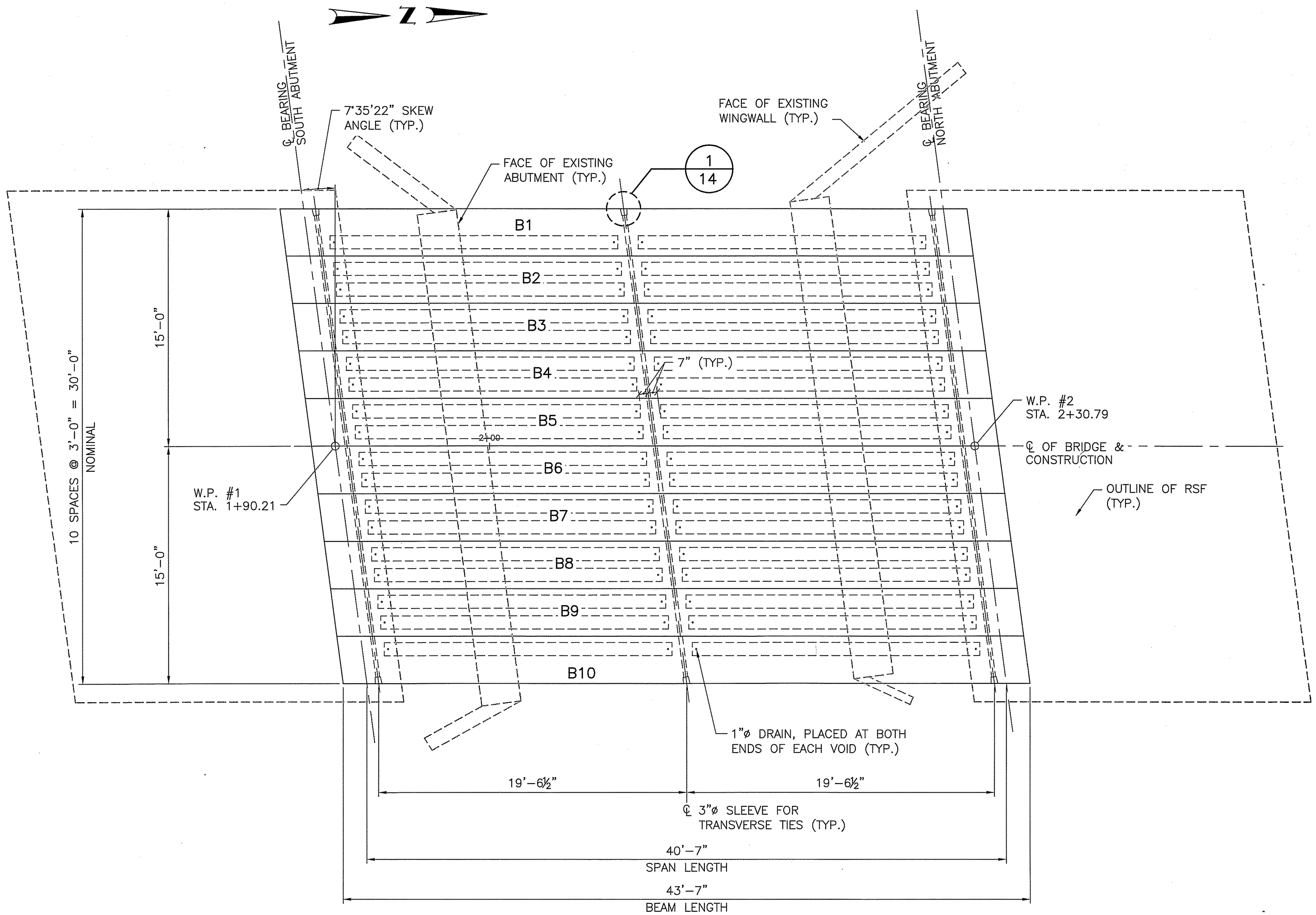
BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

LOCATION PLAN

CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_011_LOCATION

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			12	21



FRAMING PLAN
SCALE:1/4"=1'-0"

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 16 2016 FILE # 15-0179
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FEB 3 2016

Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

FRAMING PLAN

CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_012_BFRAMING

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			13	21

A.P.140 LOT 31
N/F JOHN & SUSAN KARBOWSKI, TE
M.A. 203 CROSS STREET
SEEKONK, MA 02771

A.P.140 LOT 30
N/F WAYNE A. BOLTON
163 LAUREL RIDGE AVENUE
M.A. 25 PINE HILL ROAD
JOHNSTON, RI 02919

A.P.140 LOT 11
N/F THOMAS M. & KELLY A. TAYLOR
43 NORTH ROAD
PASCOAG, RI 02859

200' RIVERBANK WETLAND

℄ BRG. SOUTH ABUTMENT

℄ BRG. NORTH ABUTMENT

40'-7" ALONG BRIDGE ℄

DRILLHOLE SET EL. 387.08

DRILLHOLE SET EL. 387.04

R=70.00'

R=40.00'

2'-0" SAFETY WALK

℄ OF CONSTRUCTION

PK SET EL. 396.93

P.I. STA. 1+56.75

170°54'28"

60°38'46"

29.00'

31.30'

34.81'

16.55'

17.57'

EL. 376.11

EL. 395.76

EL. 395.97

EL. 396.13

EL. 396.42

EL. 396.25

EL. 396.16

EL. 395.89

EL. 396.39

EL. 396.65

EL. 396.87

EL. 396.64

EL. 396.61

EL. 396.79

EL. 397.03

EL. 397.23

EL. 397.95

EL. 397.31

EL. 397.53

EL. 398.09

EL. 396.97

EL. 397.16

EL. 397.50

W.P. #1

W.P. #2

NORTH ROAD
EL. 397.06

13.40'

16.19'

13'-2"

13.58'

14.35'

14.84'

16.91'

3.87'

18.74'

17.93'

EDGE OF PAVEMENT

12"HDPE INV.=391.80

12"HDPE INV.=393.43

12"CMP INV.=390.12

EXIST. WINGWALL TO REMAIN (TYP.)

GROVE STREET

CLEAR RIVER

POLE #4

GUY

WF1D WF2D WF3D WF4D WF5D WF6D WF7D WF8D

WF1C WF2C WF3C WF4C WF5C WF6C WF7C

WF1B WF2B WF3B WF4B WF5B WF6B

WF1A WF2A WF3A WF4A WF5A

GRADING PLAN
SCALE: 1"=10'

STATE OF RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
RHODE ISLAND WATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS NOTED IN THE LETTER OF APPROVAL
DATE FEB 16 2016 FILE # 15-0179
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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FEB 3 2016

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

GRADING PLAN

CHECKED BY _____ DATE _____ SCALE AS SHOWN

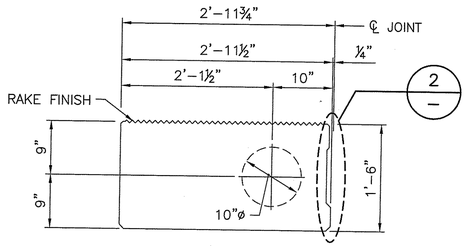
Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

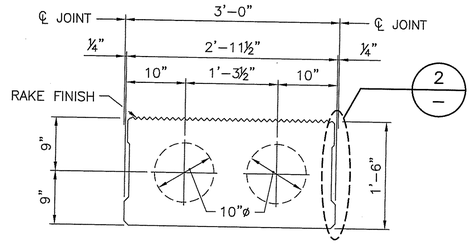
0000X_V1_013_GRADING

P:\140001\40000.00 North Road Bridge Replacement_Drawings\Illustrator_Current_Drawings\0000X_V1_013_GRADING.dwg, 12/1/2015 11:27:03 AM, RW

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			14	21

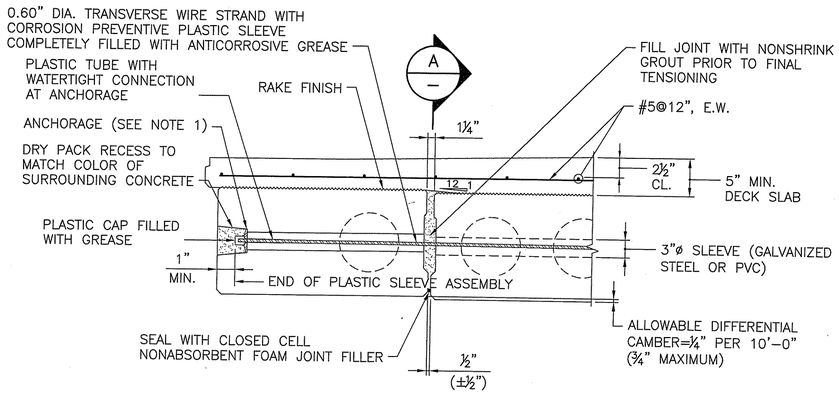


"B1" & "B10"
S18X36



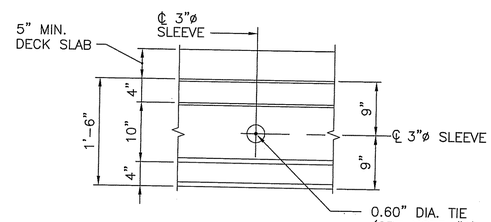
"B2"–"B9"
S18X36

SLAB SECTIONS
SCALE:1"=1'-0"

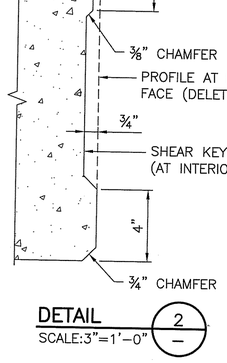


NOTE:
TENSION STRAND TO 5,000 LBS PRIOR TO GROUTING JOINTS. AFTER GROUT IS CURED, TENSION STRAND TO 44,000 LBS.

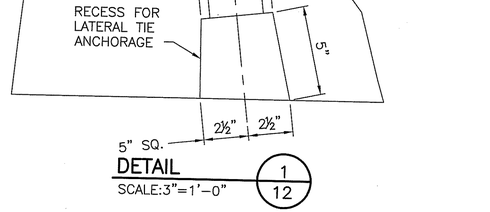
LATERAL TIE DETAIL
SCALE:1"=1'-0"



SECTION A — SCALE:1"=1'-0"



DETAIL 2 — SCALE:3"=1'-0"



DETAIL 1/12 — SCALE:3"=1'-0"

LOCATION	LEFT EDGE OF DECK SLAB	℄ OF CONSTRUCTION GRADE LINE	RIGHT EDGE OF DECK SLAB
℄ BRGS. @ ABUT.			
MIDSPAN			
℄ BRGS. @ ABUT.			

NOTES:
1. THIS TABLE INDICATES THE THEORETICAL THICKNESS OF THE DECK SLAB IN INCHES BASED UPON ASSUMED BEAM CAMBERS AT ERECTION.
2. TABLE IS PROVIDED TO ASSIST IN ESTIMATING THE REQUIRED CONCRETE VOLUME.
3. THE ACTUAL DECK THICKNESSES WILL BE AS REQUIRED TO MEET THE PROFILE GRADES.

THEORETICAL DECK SLAB THICKNESS TABLE

SHEAR KEY DETAILS
NOT TO SCALE

NOTES:
1. DETAILS OF THE ANCHORAGE ASSEMBLY ARE TO BE SUBMITTED FOR REVIEW AND APPROVAL BY THE ENGINEER.
2. ALL PRESTRESSED CONCRETE SLABS SHALL BE ERECTED AS INDICATED ON THE CONTRACT DRAWINGS. THEY SHALL BE SET TO THE SPECIFIED (NOMINAL) DIMENSIONS AND WITH THE SPECIFIED (NOMINAL) 1 INCH SPACING BETWEEN UNITS. THE LATERAL POST–TENSIONING STRANDS SHALL BE TENSIONED INITIALLY TO 5,000 POUNDS. SAID LATERAL POST–TENSIONING IS NOT EXPECTED TO DRAW THE UNITS TOGETHER. AFTER THE UNITS ARE IN PLACE, THE FOAM JOINT FILLER SHALL BE PLACED AT THE BOTTOM OF THE SHEAR KEYS. APPROVED NON–SHRINK GROUT SHALL THEN BE PLACED INTO THE SHEAR KEYS AND ALLOWED TO CURE, FOR A MINIMUM OF 72 HOURS, AFTER WHICH THE STRANDS SHALL BE STRESSED TO THE FULL 44,000 POUNDS.
3. THE CONTRACTOR SHALL FURNISH THE TOWN WITH CALCULATIONS FOR THE THEORETICAL ELONGATION OF THE LATERAL POST–TENSIONING STRANDS SO THAT THE STRAND TENSION INDICATED ON THE CALIBRATED METER CAN BE VERIFIED. THE CONTRACTOR SHALL FURNISH RECORDS OF THE GAUGE READINGS VERSUS THE MEASURED ELONGATIONS.
4. FOR ADDITIONAL PRESTRESSED CONCRETE NOTES REFER TO "BRIDGE GENERAL NOTES SHEET 2".
5. THE TOP OF ALL BEAMS SHALL BE GIVEN A RAKE FINISH (¼" MAGNITUDE) ACROSS THE WIDTH (PERPENDICULAR TO THE BEAM'S AXIS).
6. THE EXTERIOR FACE OF FASCIA BEAM SHALL RECEIVE A RUBBED FINISH.
7. THE CONCRETE FOR THE DECK SLAB SHALL BE PLACED AFTER TRANSVERSE TIES HAVE BEEN PROPERLY TENSIONED AND NON–SHRINK GROUT HAS ATTAINED THE 28 DAY COMPRESSIVE STRENGTH.

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
WETLANDS PROGRAM
APPROVED WITH CONDITIONS
SEE CONDITIONS IN THE LETTER OF APPROVAL
DATE FEB 16 2016 FILE # 15-0179
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

FEB 3 2016

Kambiz Karbassi
STATE OF RHODE ISLAND
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

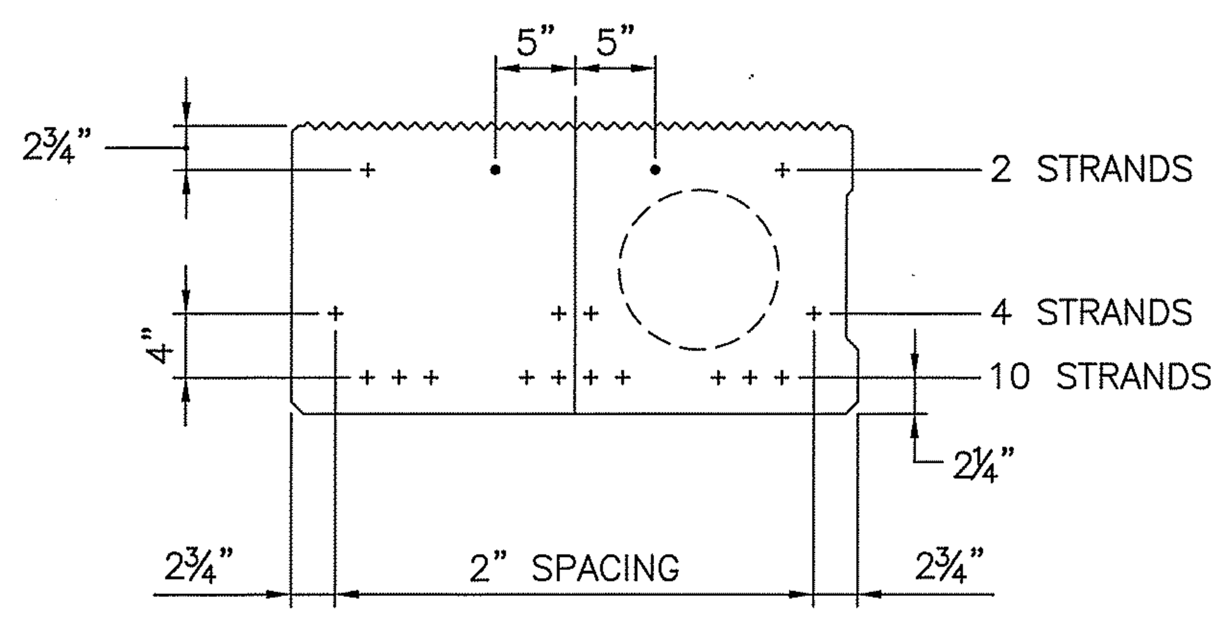
PRECAST CONCRETE SLAB DETAILS SHEET 1

CHECKED BY _____ DATE _____ SCALE AS SHOWN

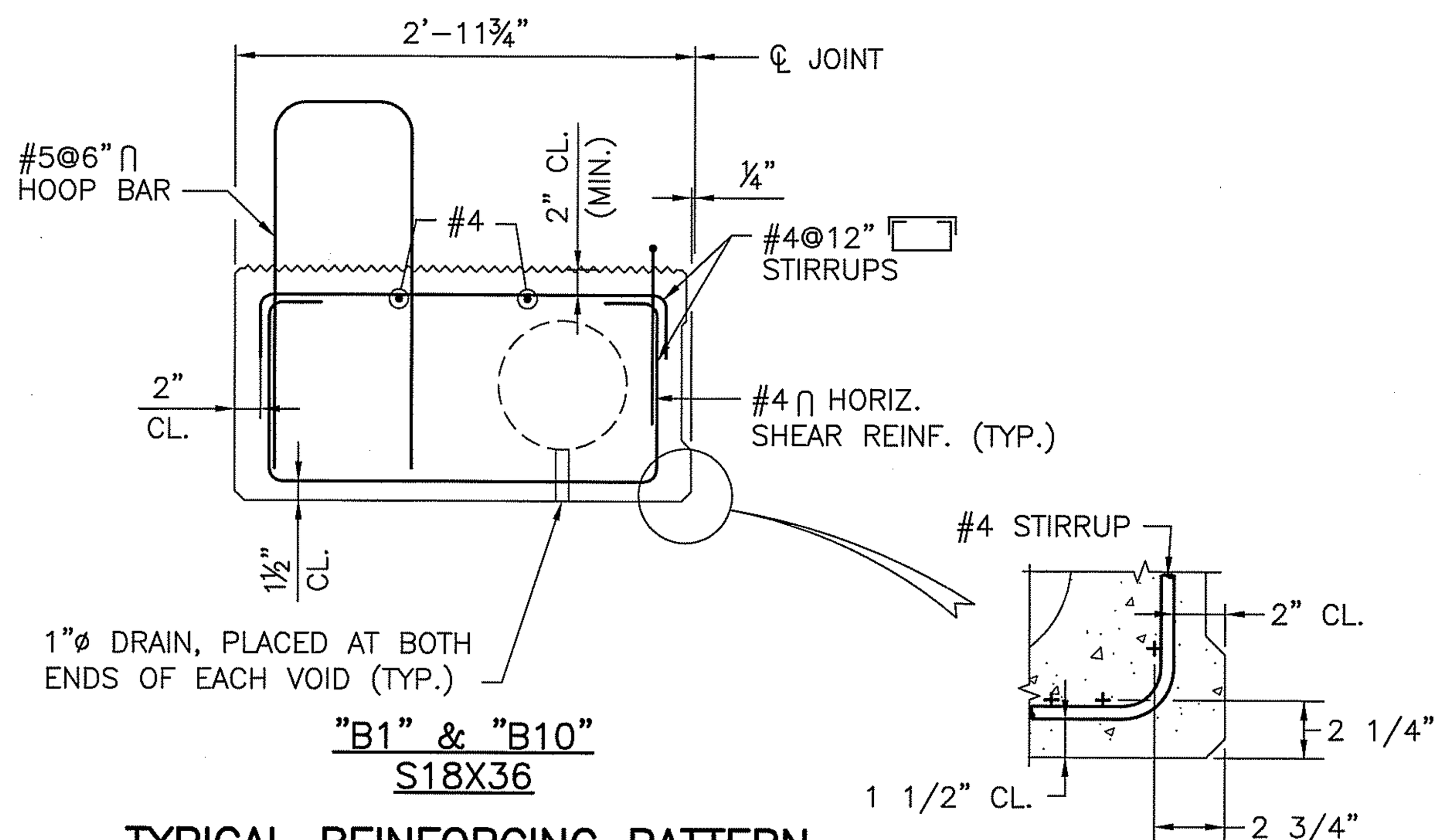
0000X_V1_014_BEAMDETL001

P:\15000\15000.00 North Road Bridge Replacement_Drawings\Structural_Contract_Drawings\00000_V1_014_BEAMDETL001.dwg, 12/11/2015 11:23:21 AM, PRF

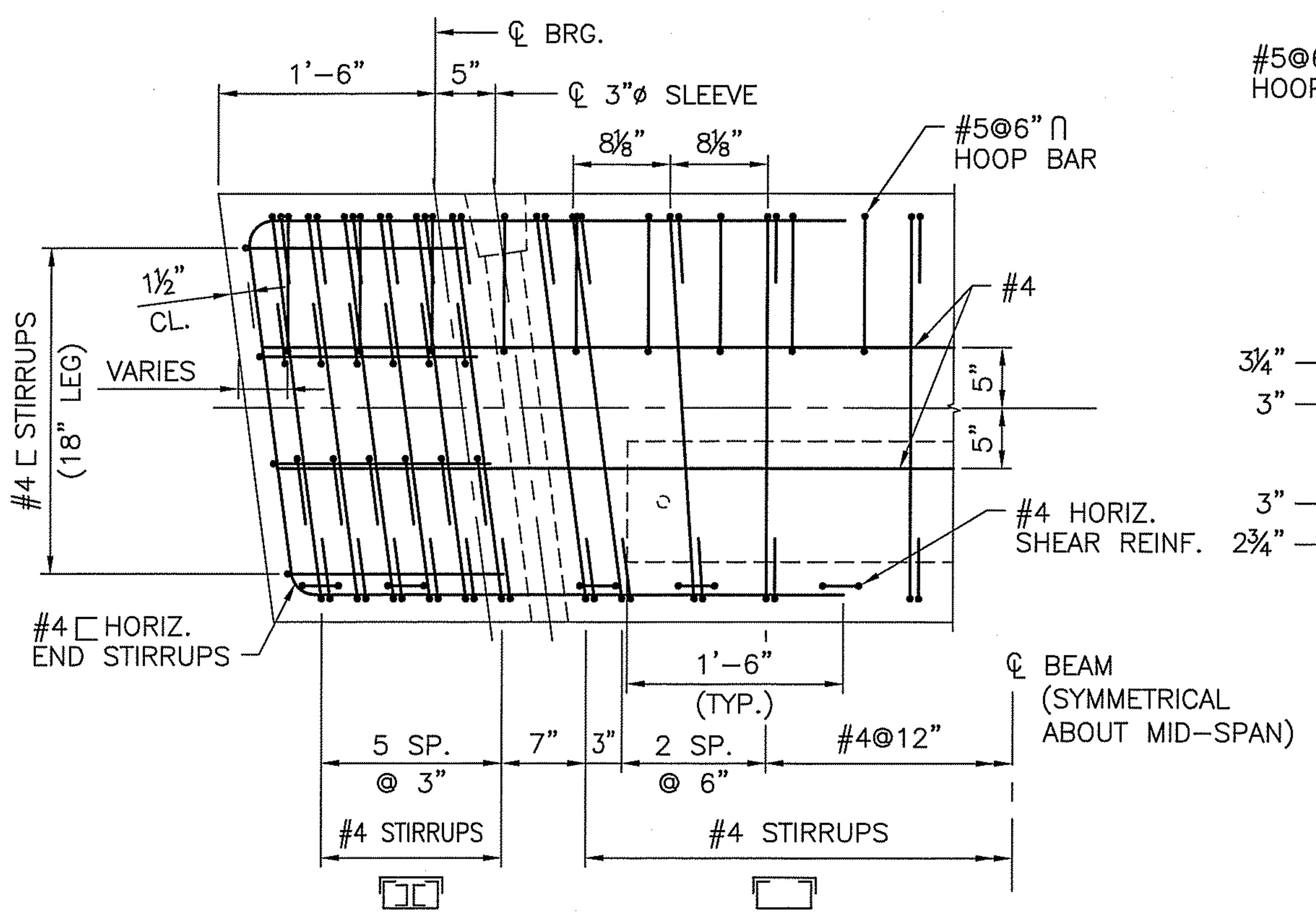
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			15	21

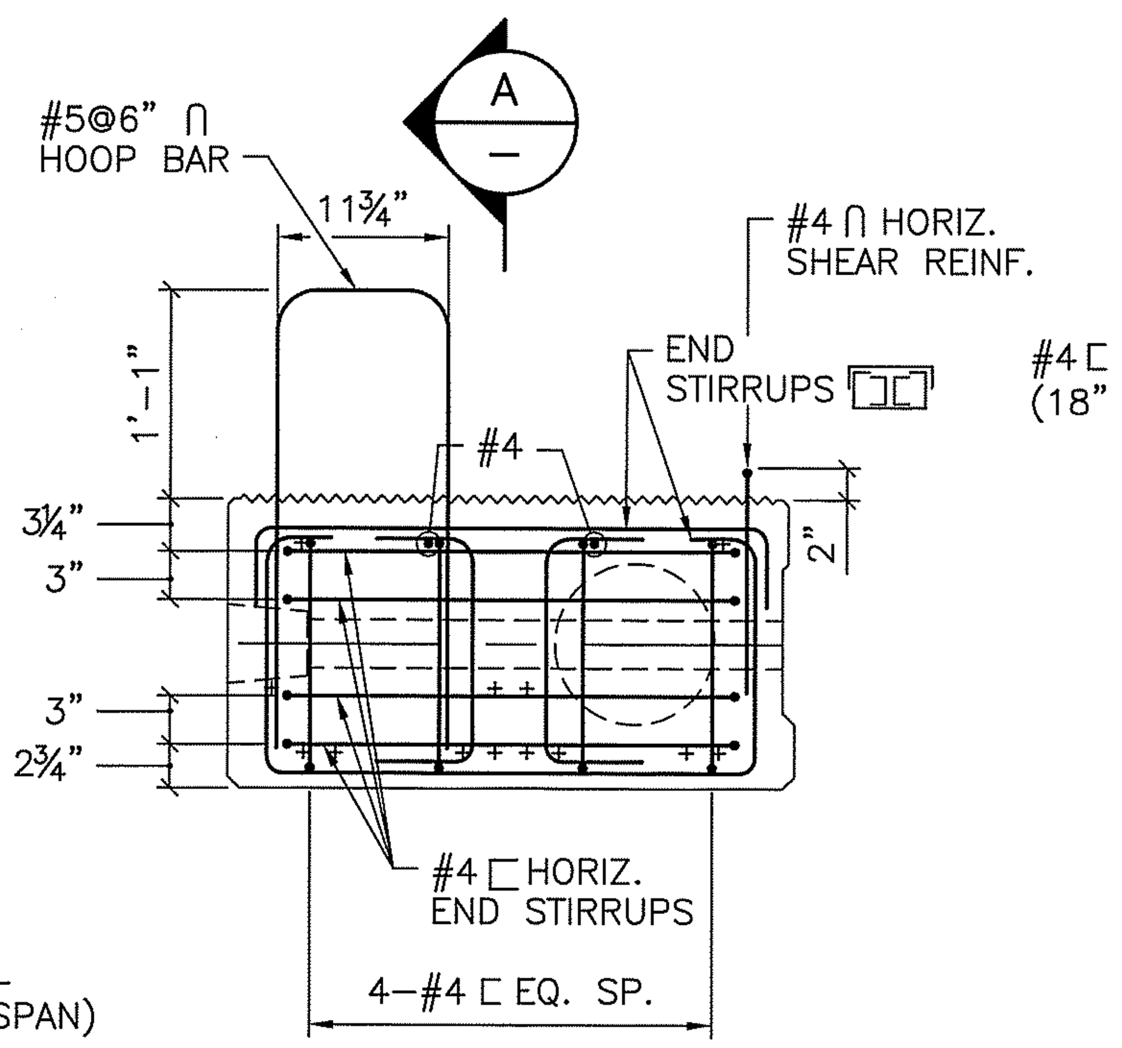


"B1" & "B10"
S18X36
STRAND LOCATIONS
SCALE:1"=1'-0"

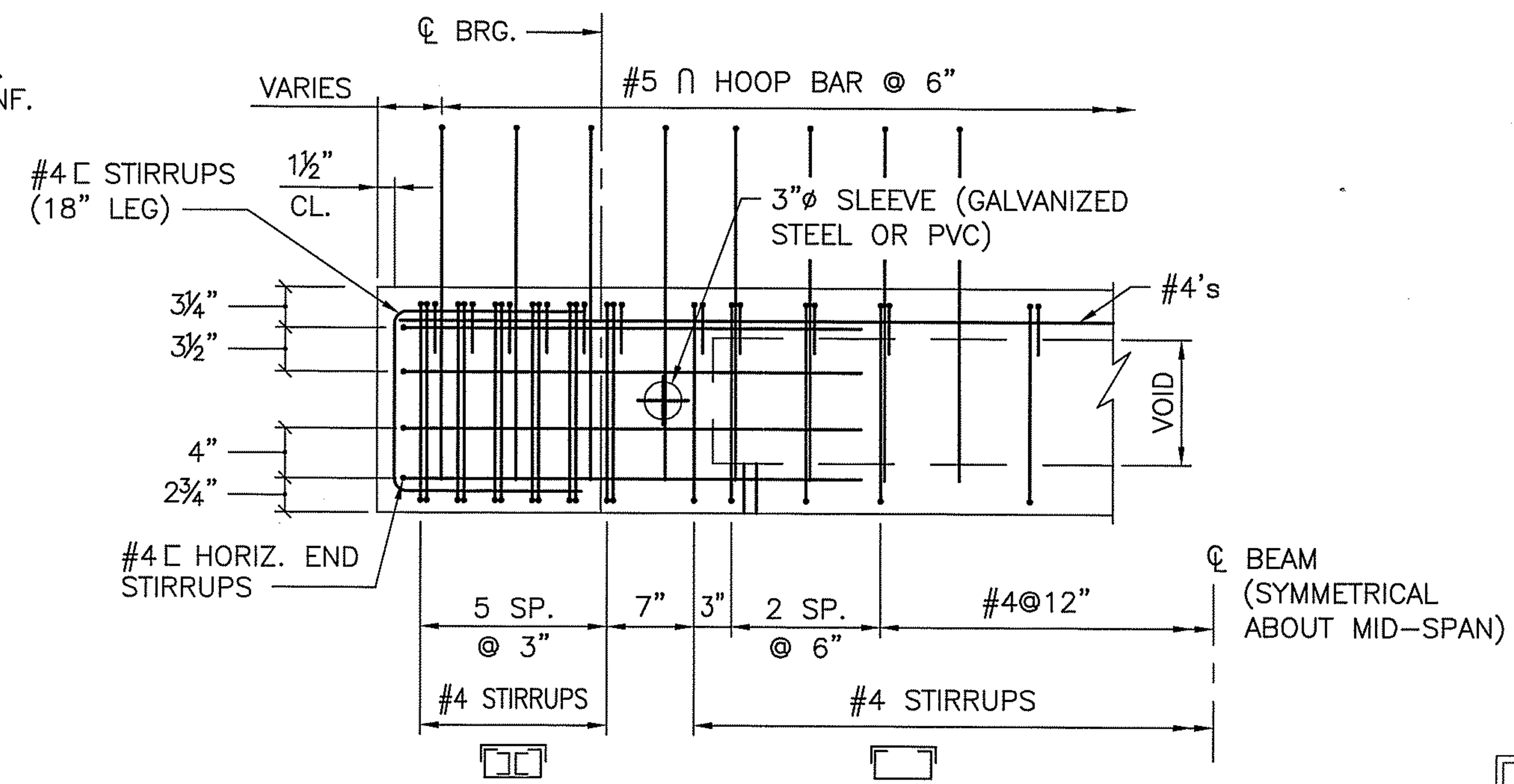


"B1" & "B10"
S18X36
TYPICAL REINFORCING PATTERN
SCALE:1"=1'-0"





"B1" & B10"
S18X36
END OF BEAM SECTION



SECTION A

END REINFORCING PATTERN
SCALE:1"=1'-0"

PRESTRESSED CONCRETE NOTES:

1. THE CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 8,000 PSI. THE MINIMUM COMPRESSIVE STRENGTH AT STRESS TRANSFER SHALL NOT BE LESS THAN 5,500 PSI.
2. PRESTRESSING STRANDS SHALL CONSIST OF UNCOATED HIGH STRENGTH SEVEN WIRE LOW-RELAXATION STRANDS HAVING A NOMINAL DIAMETER OF 0.6" CONFORMING TO THE REQUIREMENTS OF AASHTO DESIGNATION M 203 GRADE 270.
3. THE INITIAL TENSION PER 0.6" DIAMETER STRAND SHALL BE 44 KIPS.
4. FOR ADDITIONAL PRESTRESSED CONCRETE NOTES REFER TO "BRIDGE GENERAL NOTES SHEET 2".

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 16 2016 FILE # 15-0179
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

FEB 3 2016

Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

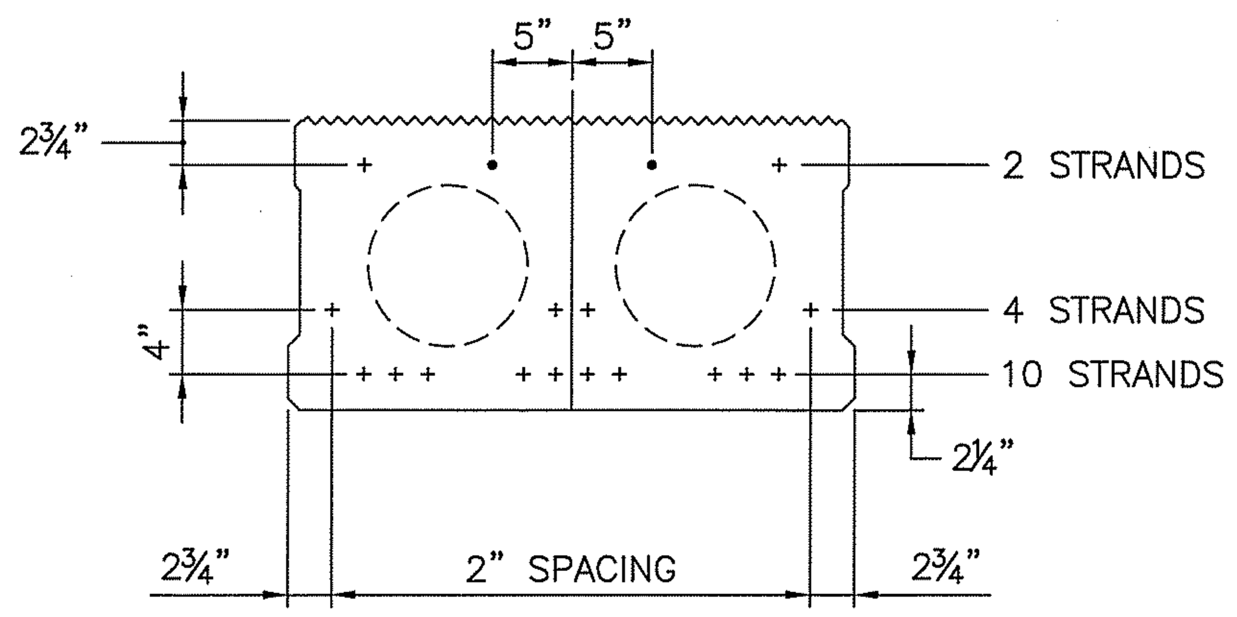
BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

PRECAST CONCRETE
SLAB DETAILS SHEET 2

CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_015_BEAMDETL002

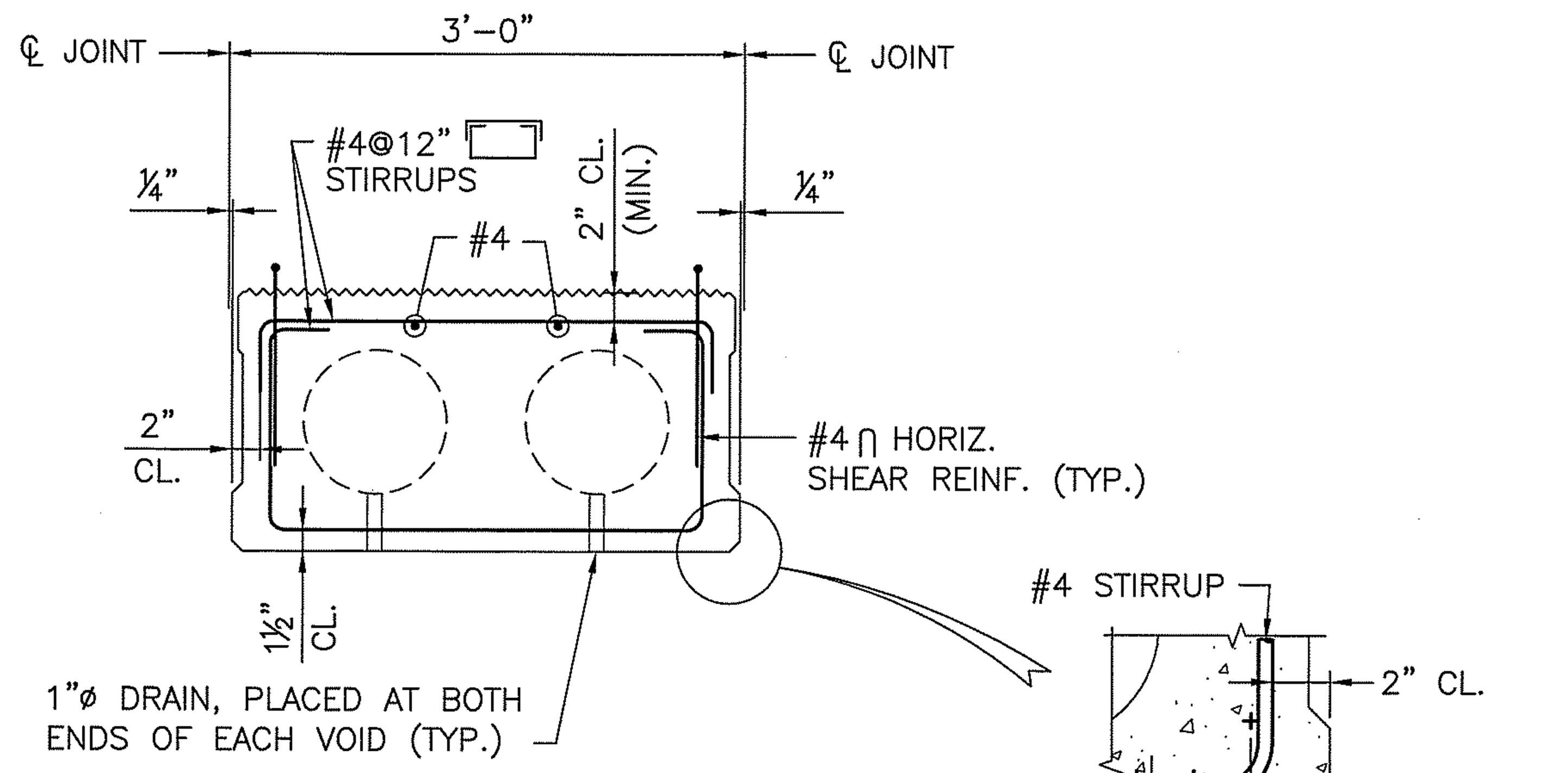
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			16	21



"B2"–"B9"
S18X36

STRAND LOCATIONS

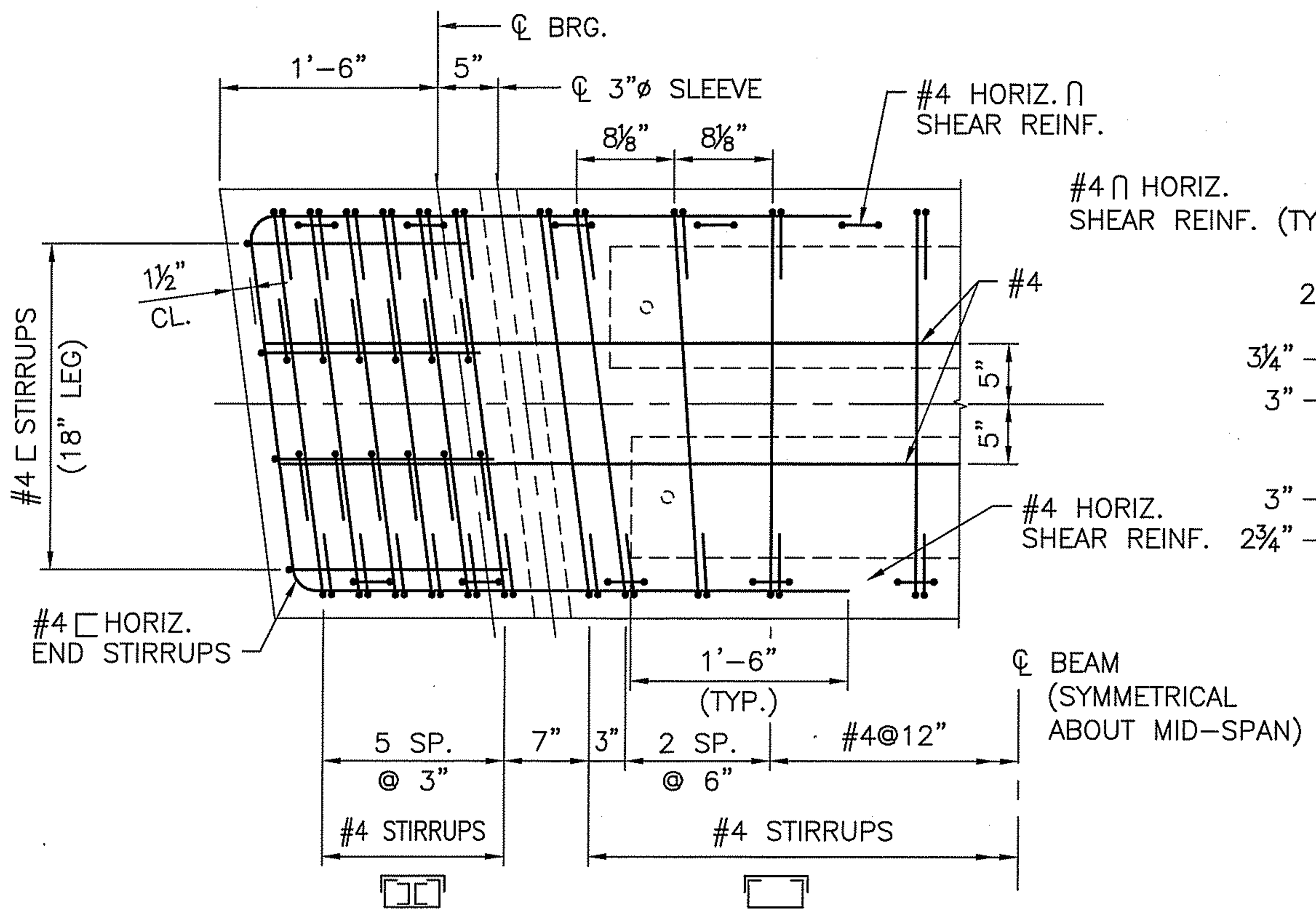
SCALE:1"=1'–0"

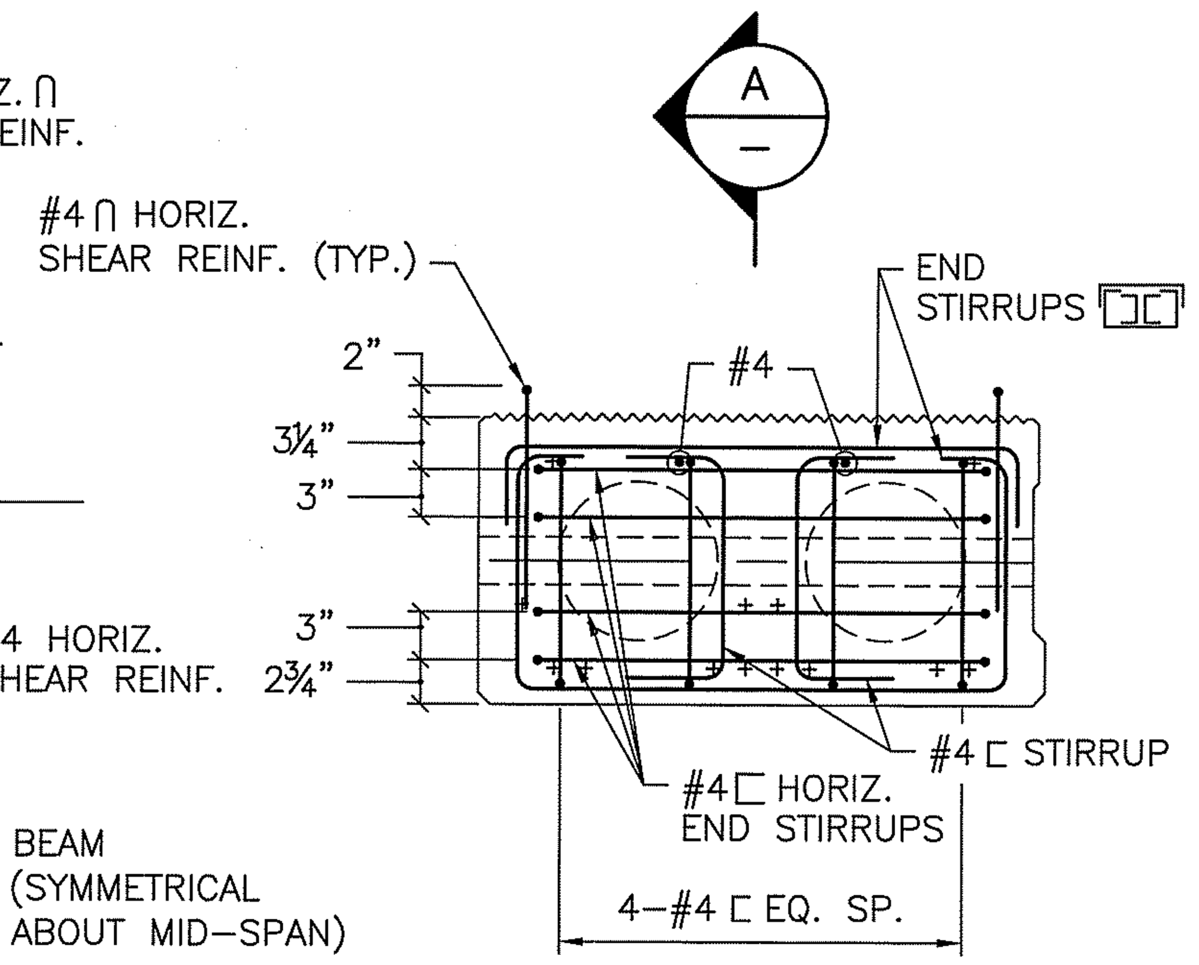


"B2"–"B9"
S18X36

TYPICAL REINFORCING PATTERN

SCALE:1"=1'–0"

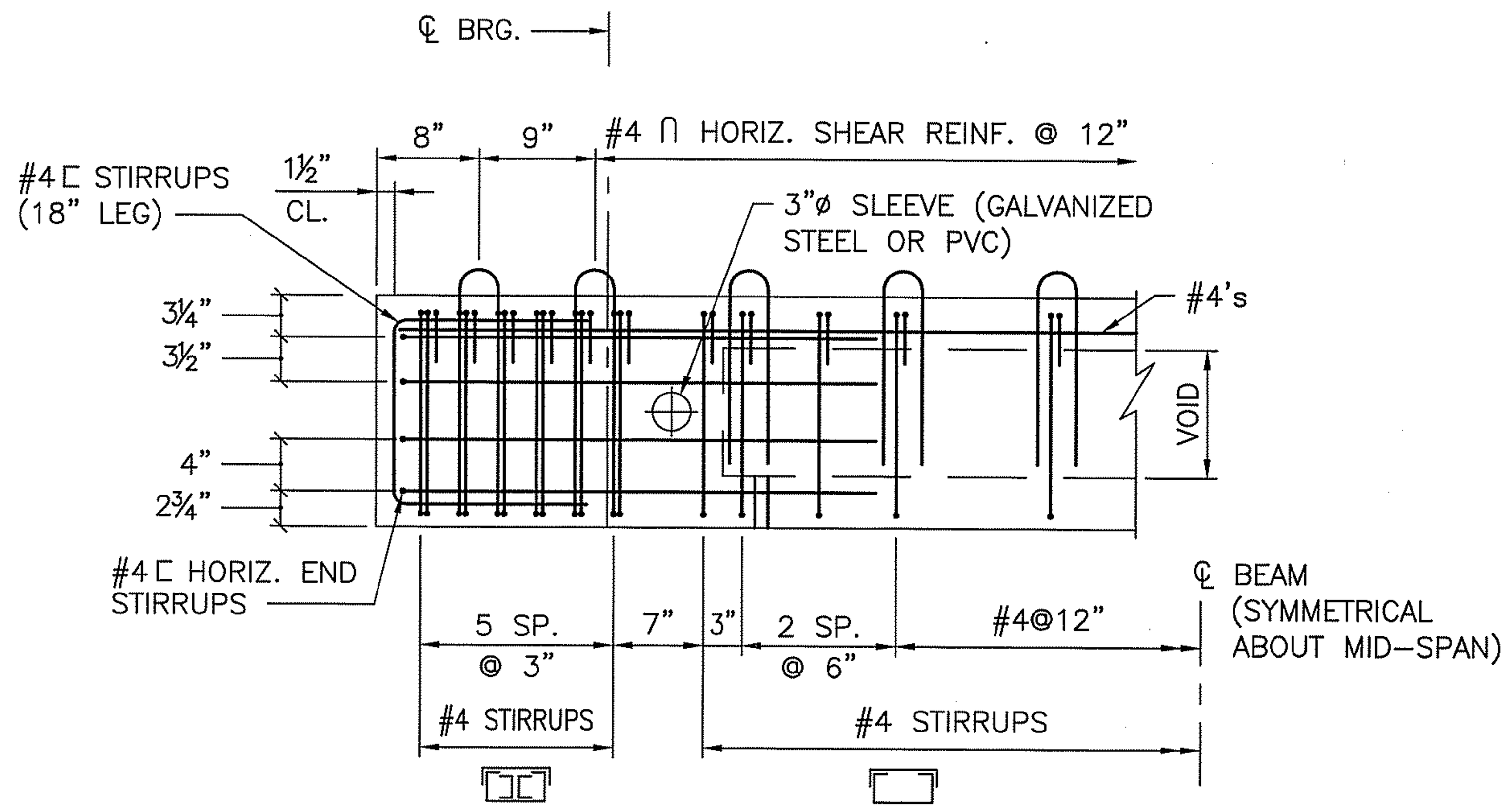




"B2" – B9"
S18X36
END OF BEAM SECTION

END REINFORCING PATTERN

SCALE:1"=1'–0"



SECTION A

NOTE:
FOR PRESTRESSING CONCRETE NOTES REFER TO "PRECAST CONCRETE SLAB DETAILS SHEET 2".

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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FEB 3 2016

Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

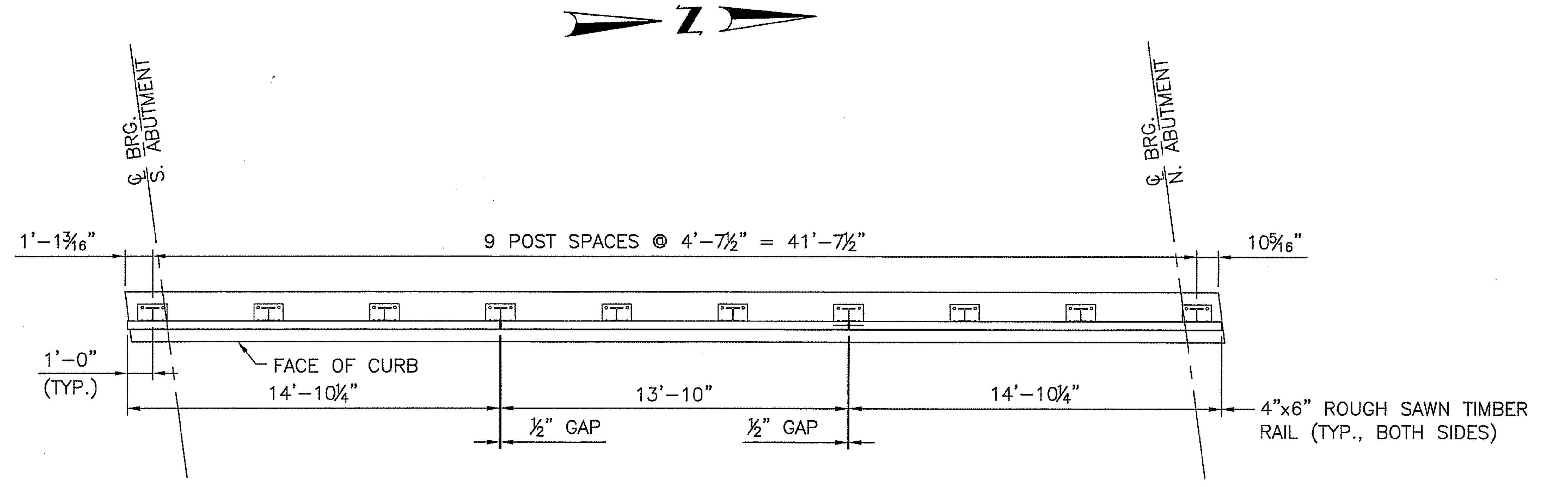
TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

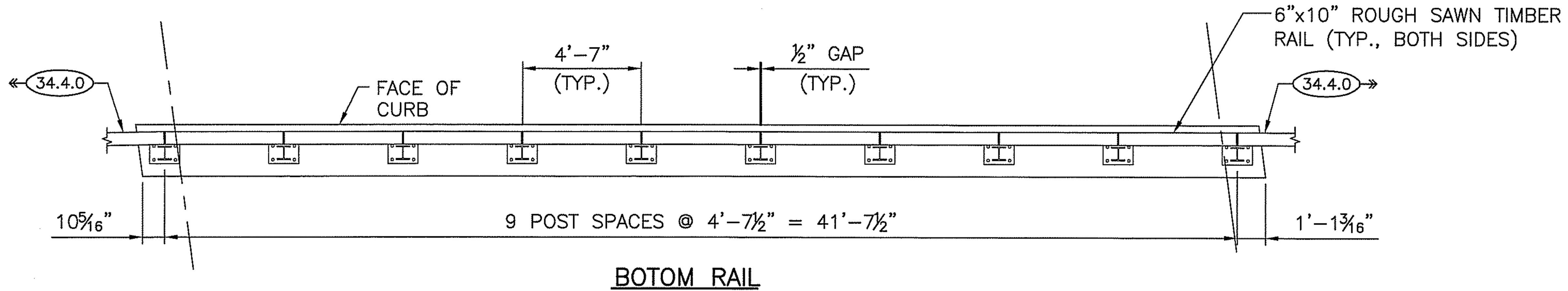
PRECAST CONCRETE
SLAB DETAILS SHEET 3

CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_016_BEAMDETL003



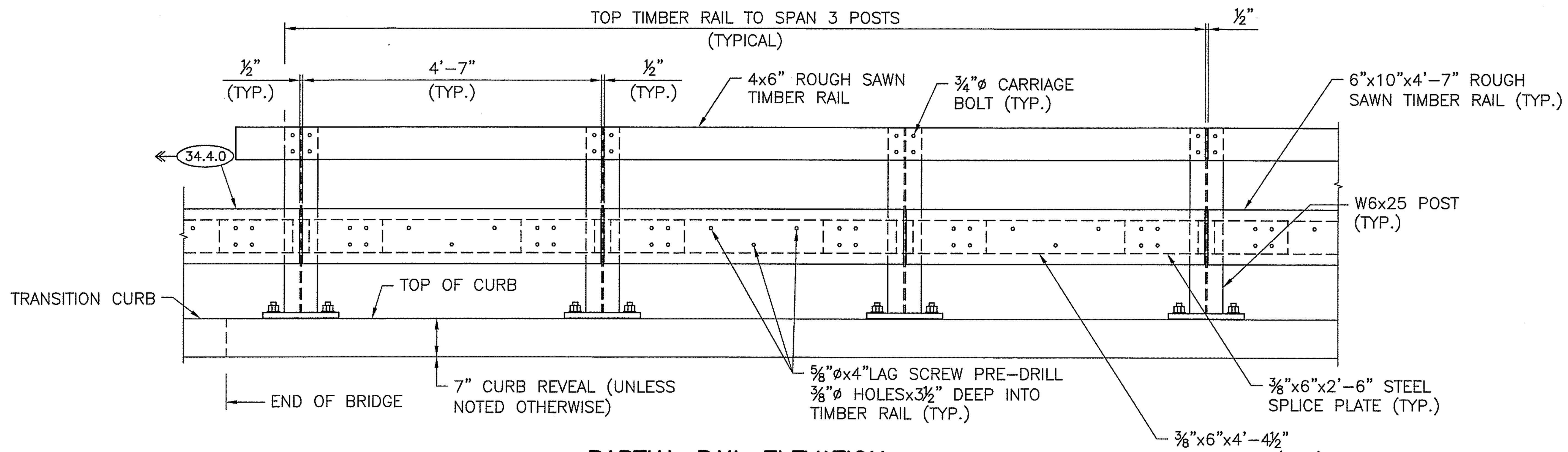
TOP RAIL



BOTOM RAIL

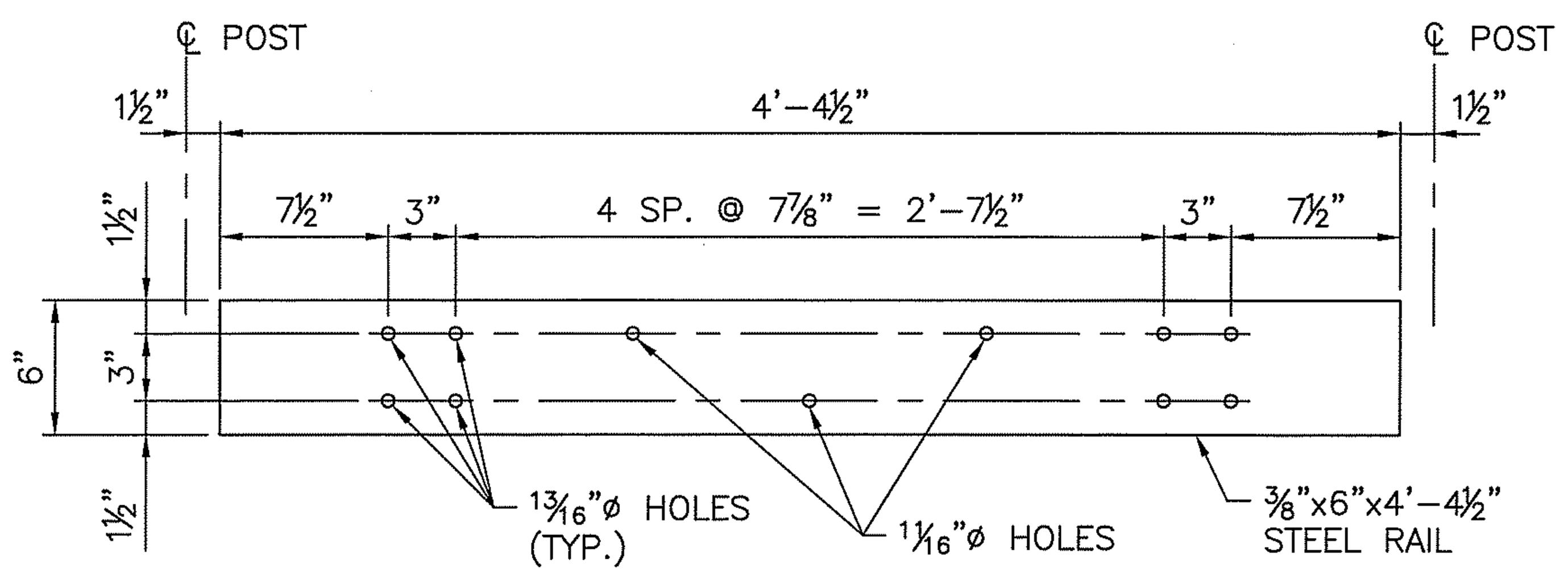
RAIL POST SPACING PLANS

SCALE:1/4=1'–0"



PARTIAL RAIL ELEVATION

SCALE:1 1/2'"=1'–0"



STEEL RAIL DETAIL

SCALE:1 1/2'"=1'–0"

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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DATED FEB 1 5 2016 FILE # 15-0119
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NOTES:

1. FOR APPLICABLE NOTES REFER TO "BRIDGE RAILING SHEET 2".

FEB 3 2016

Kambiz Karbassi
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

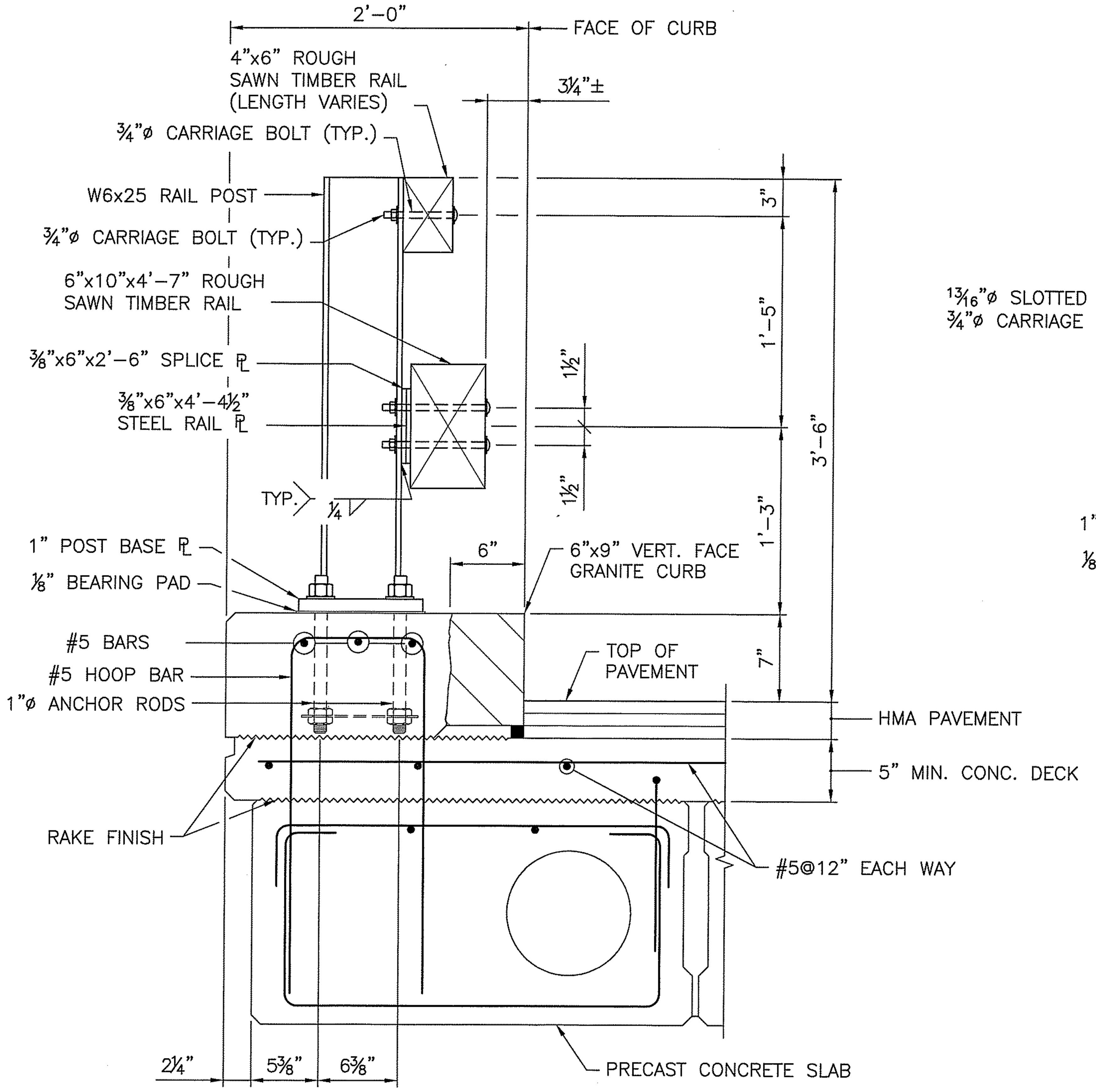
TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

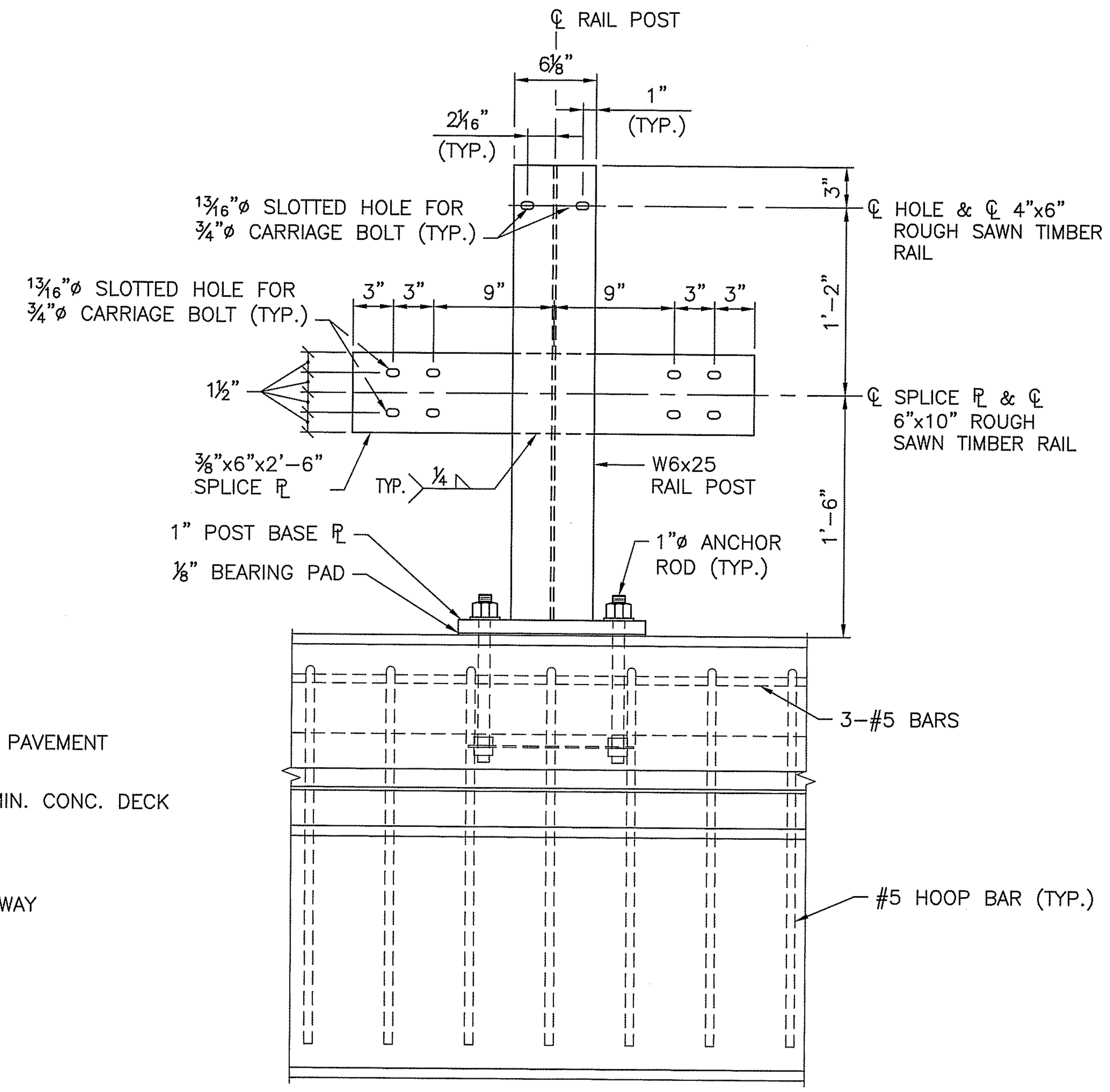
BRIDGE RAILING
SHEET 1

CHECKED BY ________ DATE ________ SCALE AS SHOWN

0000X_V1_017_RAILING001



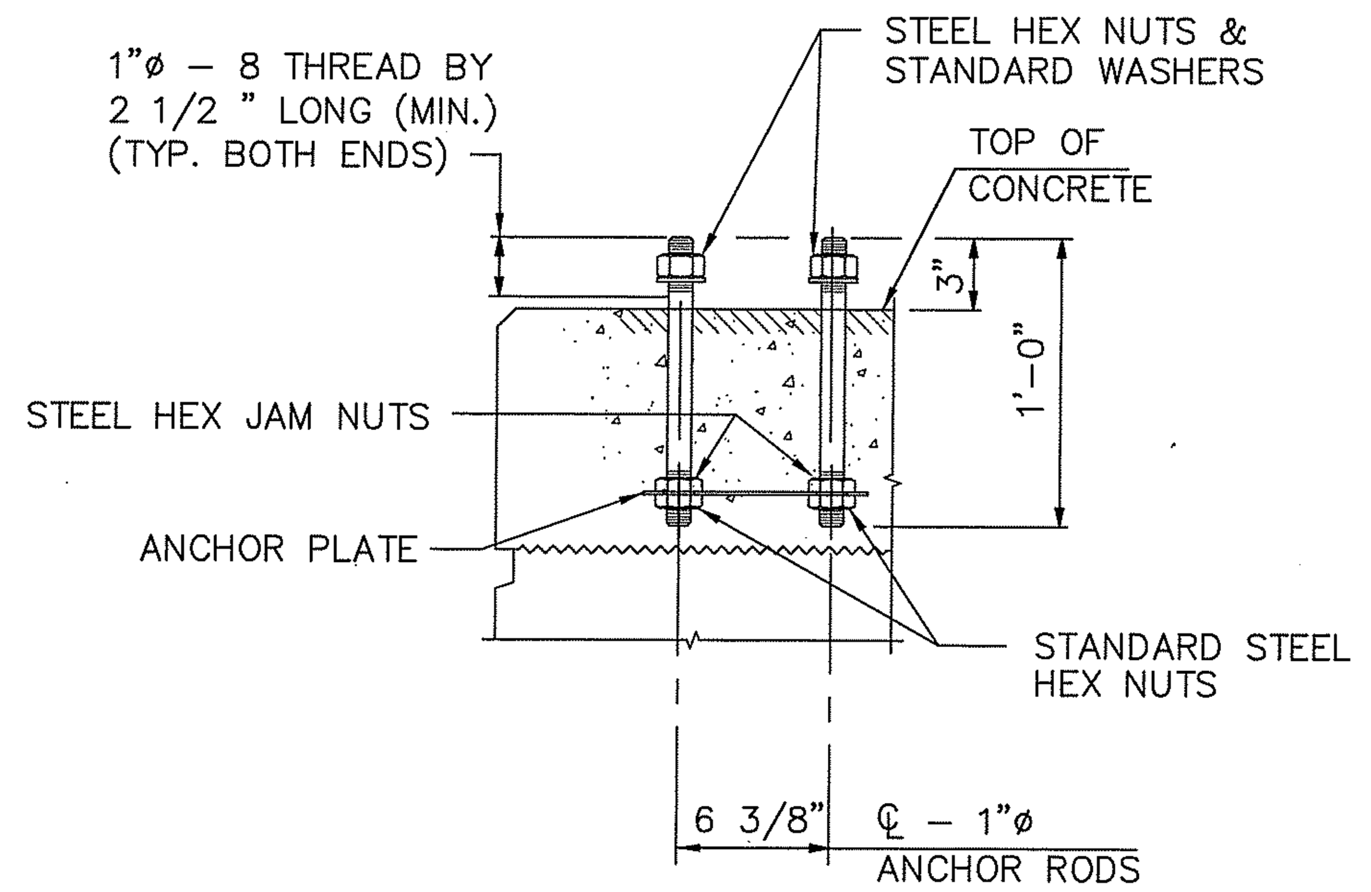
SECTION VIEW



BACK ELEVATION VIEW

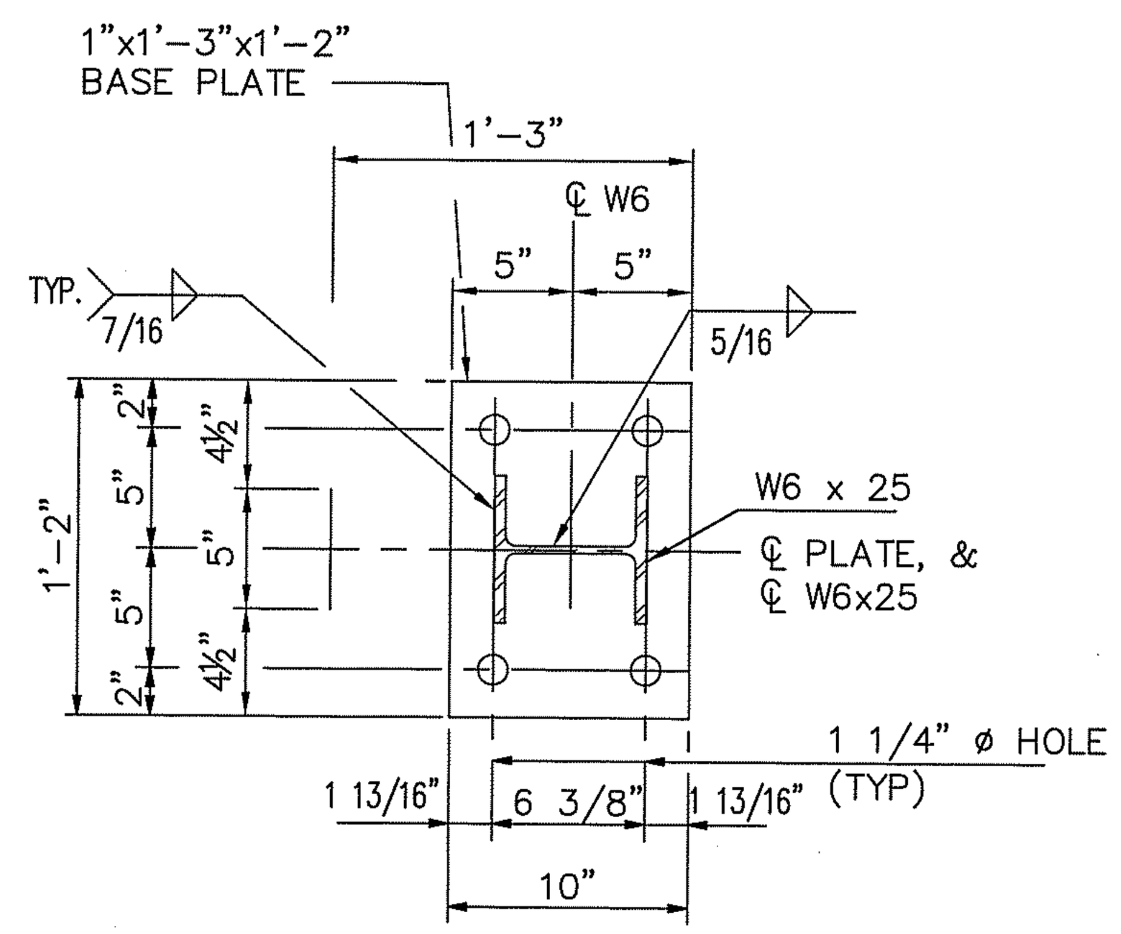
POST ASSEMBLY

SCALE:1 1/2"=1'-0"



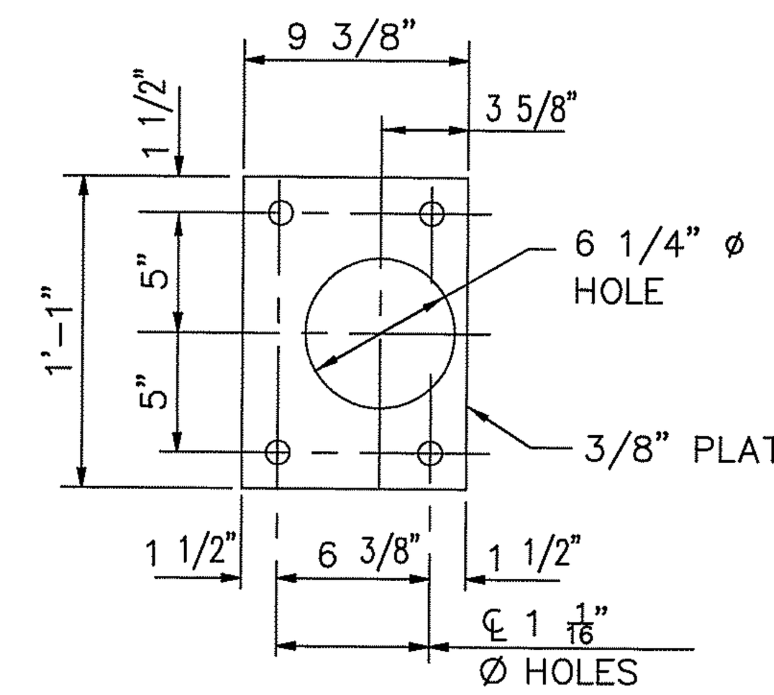
POST ANCHOR ASSEMBLY

NOT TO SCALE



POST BASE PLATE

NOT TO SCALE



ANCHOR PLATE

NOT TO SCALE

RAILING NOTES:

1. BRIDGE RAIL SHALL INCLUDE POSTS, BASE PLATES, ANCHOR RODS, PREFORMED PADS, RAIL ASSEMBLY BOLTS, NUTS, WASHERS, SPLICE BARS, ALL APPURTENANCES, GALVANIZING, METALIZING, AND PRESSURE TREATMENT.
2. BRIDGE RAIL POSTS SHALL BE SET VERTICAL UNLESS OTHERWISE SPECIFIED.
3. ENDS OF RAIL SECTIONS SHALL BE SAWED AND SHALL BE TRUE AND SMOOTH.
4. BOLT HOLES SHALL BE DRILLED OR PUNCHED.
5. NO PUNCHING, DRILLING, CUTTING OR WELDING SHALL BE PERMITTED AFTER METALIZING. REPAIR OF DAMAGED AREAS OF METALIZING SHALL BE MADE IN STRICT ACCORDANCE WITH THE MATERIAL SUPPLIER'S RECOMMENDATIONS AND SHALL BE APPROVED BY THE ENGINEER.
6. NUTS FOR 1"ø THREADED ANCHOR RODS CONNECTING THE BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
7. THREADS FOR ANCHOR RODS MAY BE ROLLED OR CUT. IF CUT THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN NOMINAL DIAMETER. IF ROLLED THREADS ARE USED, ROD DIAMETER SHALL NOT BE LESS THAN ROOT DIAMETER OF THREADS.

MATERIAL NOTES:

1. RAIL POSTS AND BASE PLATES SHALL CONFORM TO REQUIREMENTS OF ASTM A572 GR. 50, EXCEPT ANCHOR PLATES MAY BE ASTM A36.
2. ALL BOLTS AND NUTS SHALL CONFORM TO ASTM A307 AND ASTM 563 GRADE A RESPECTIVELY OR BETTER. ANCHOR RODS SHALL CONFORM TO ASTM A449 EXCEPT THAT ASTM A307 NUTS MAY BE USED ON THE BOTTOM OF ANCHOR ASSEMBLY. WASHERS SHALL BE HARDENED STEEL COMMERCIAL TYPE A PLAIN WIDE WASHERS AND SHALL MEET THE DIMENSIONAL REQUIREMENTS OF A.N.S.I. B18.22.
3. ALL STEEL COMPONENTS (EXCEPT POST ANCHOR ASSEMBLY) SHALL BE METALIZED AFTER FABRICATION IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF SECTION 827 OF THE RI STANDARD SPECIFICATIONS. ALL OTHER FASTENERS, HARDWARE ITEMS, AND POST ANCHOR ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 (ASTM A153) AND AASHTO M111 (ASTM A123).
4. PREFORMED BEARING PADS (⅛" THICK) SHALL CONFORM TO AASHTO M251.
5. TIMBER ITEMS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF SECTION 902 OF THE RI STANDARD SPECIFICATIONS AND SHALL BE PRESSURE-TREATED STRUCTURAL LUMBER, EITHER SPRUCE OR FIR, CONFORMING TO THE REQUIREMENTS OF AASHTO M168; STANDARD SPECIFICATIONS FOR WOOD PRODUCTS.
6. TIMBER ITEMS SHALL BE TREATED WITH A WATER-BORNE PRESERVATIVE TO A MINIMUM NET RETENTION OF 0.60 P.C.F. IN ACCORDANCE WITH AASHTO M 133. ALL TIMBER ITEMS SHALL BE FABRICATED TO THE MAXIMUM EXTENT PRACTICAL PRIOR TO TREATMENT.
7. WHEN CUTTING OR DRILLING OF TREATED TIMBER IS PERFORMED AFTER TREATMENT, ALL CUTS AND HOLES SHALL BE TREATED WITH AN APPROVED WOOD PRESERVATIVE PRODUCT IN ACCORDANCE WITH AWPA M4.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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FEB 3 2016

Kambiz Karbassi
STATE OF RHODE ISLAND
No. 4737
REGISTERED PROFESSIONAL ENGINEER

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

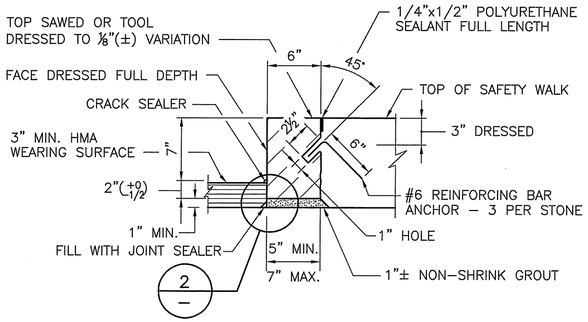
BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

BRIDGE RAILING
SHEET 2

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

CHECKED BY ________ DATE ________ SCALE AS SHOWN

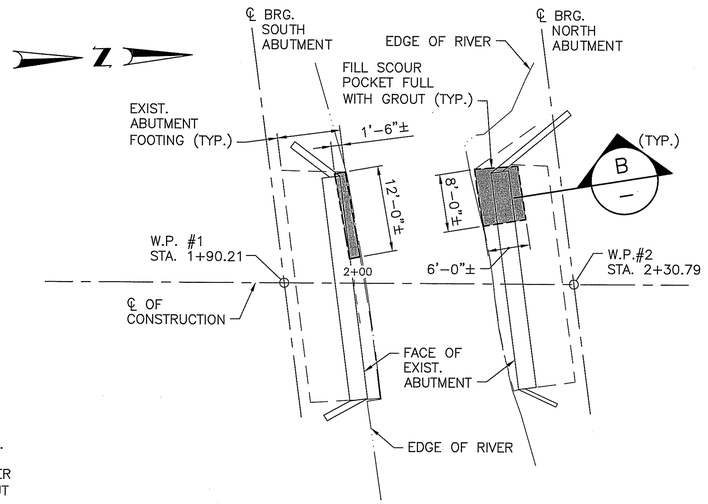
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			19	21



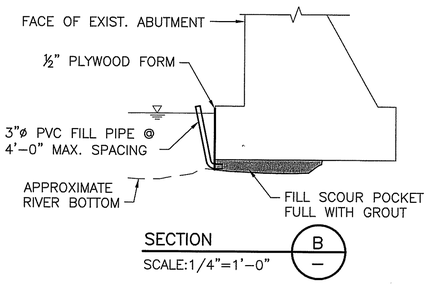
6"x9" VERTICAL FACE GRANITE CURB
(HMA WEARING SURFACE)
SCALE:1 1/2"=1'–0"

CURB NOTES:

1. FOR CUTTING TOLERANCES ON GRANITE CURB SEE R.I. STANDARD SPECIFICATIONS M–09.05.
2. STRAIGHT CURB SHALL BE FURNISHED IN LENGTHS OF NOT LESS THAN 6 FEET OR GREATER THAN 10 FEET. (5 FOOT LENGTHS MAY BE ALLOWED UNDER UNUSUAL CIRCUMSTANCES, BUT ONLY WITH THE APPROVAL OF THE BRIDGE ENGINEER).
3. CURB WHICH IS SET ON A RADIUS BETWEEN 160 FEET AND 300 FEET MAY BE FURNISHED STRAIGHT IN LENGTHS NOT TO EXCEED 6 FEET.
4. CURB TO BE SET ON A RADIUS OF 160 FEET OF LESS SHALL BE CUT TO THE CURVE REQUIRED.



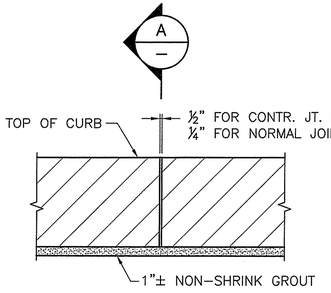
PLAN



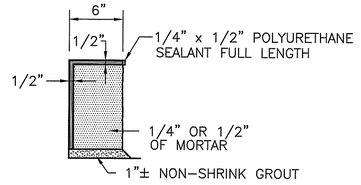
GROUTING NOTES:

1. PLACE PLYWOOD FORM ALONG FACE OF ABUTMENT FOOTING.
2. ONCE THE VENT/FILL PIPE HAS BEEN INSTALLED AND THE PLYWOOD FORM IS IN PLACE, PUMP THE GROUT INTO THE UNDERMINED SCOUR POCKETS UNTIL GROUT APPEARS IN THE ADJACENT VENT PIPES.
3. REMOVE THE VENT/FILL PIPES AFTER THE PUMPING OPERATION IS COMPLETE.
4. ADEQUATE VENTING OF THE WATER TO BE DISPLACED IN THE UNDERMINED AREA IS IMPORTANT. THE WATER MUST .BE ABLE TO ESCAPE WHEN IT IS DISPLACED BY THE GROUT PUMPED INTO THE SCOUR POCKET.
5. VENT/FILL PIPES SHALL BE AT A 4'–0" MAXIMUM SPACING.
6. IT IS IMPORTANT TO KEEP THE NOZZLE BURIED IN THE GROUT DURING THE PUMPING OPERATION. THIS IS TO REDUCE THE AMOUNT OF MIXING OF THE GROUT AND WATER TO BE DISPLACED.
7. PLYWOOD FORM SHALL BE REMOVED AFTER GROUT HAS CURED.

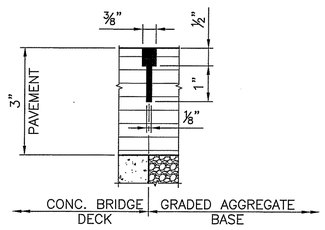
SCOUR POCKET REPAIR DETAILS
SCALE:1"=1'–0"



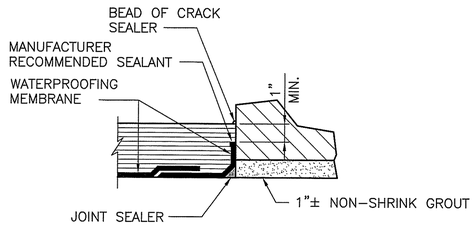
ELEVATION AT FACE OF CURB
SCALE: 1 1/2"=1'–0"



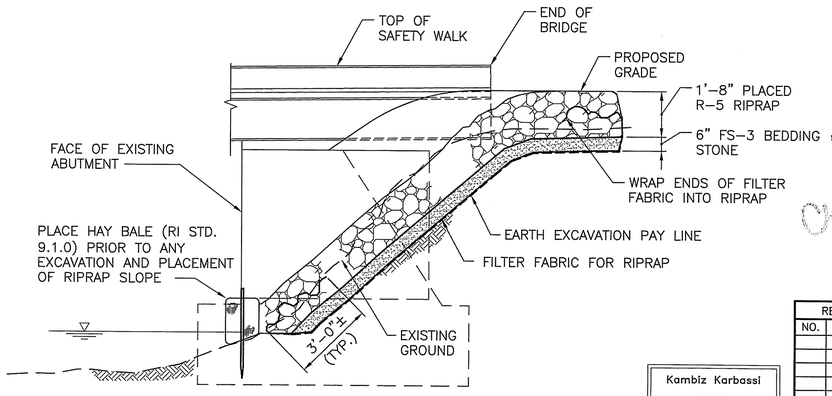
SECTION A – SCALE: 1 1/2"=1'–0"



SAW AND SEAL IN BITUMINOUS PAVEMENT DETAIL
NOT TO SCALE



DETAIL 2 – SCALE:3"=1'–0"



TYPICAL RIPRAP SLOPE DETAIL
NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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Kambiz Karbassi
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REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

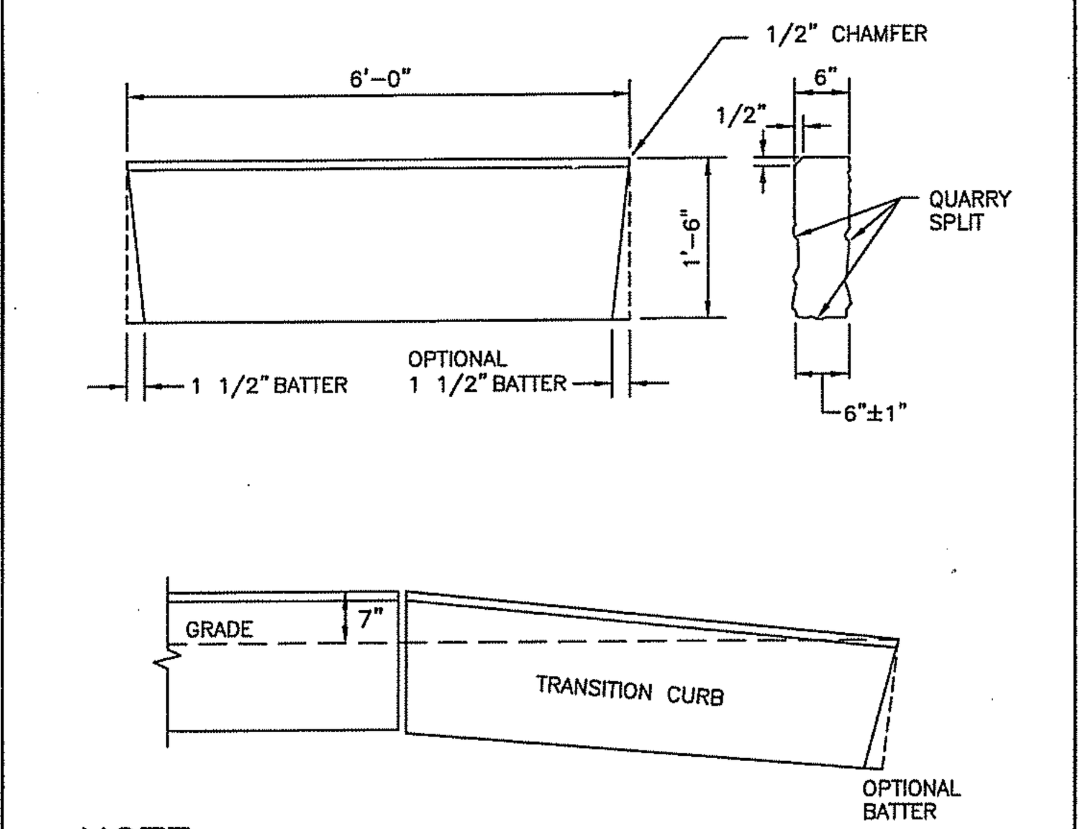
MISCELLANEOUS DETAILS

CHECKED BY _____ DATE _____ SCALE AS SHOWN

0000X_V1_019_MISCDTL

P:\16000\16009.00 North Road Bridge Replacement_Drawings\Submittal_Current_Drawings\0000X_V1_019_MISCDTL.dwg, 12/1/2015 11:37:00 AM, PRF

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			20	21



NOTE:
TRANSITION FROM 7" REVEAL TO 0" REVEAL

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CONTRACTOR MAY CUT EXISTING CURB SECTIONS AS REQUIRED TO MEET THIS DETAIL AND THE R.I. STANDARD SPECIFICATIONS, WHERE OLD CURBING IS BEING REUSED.
3. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.

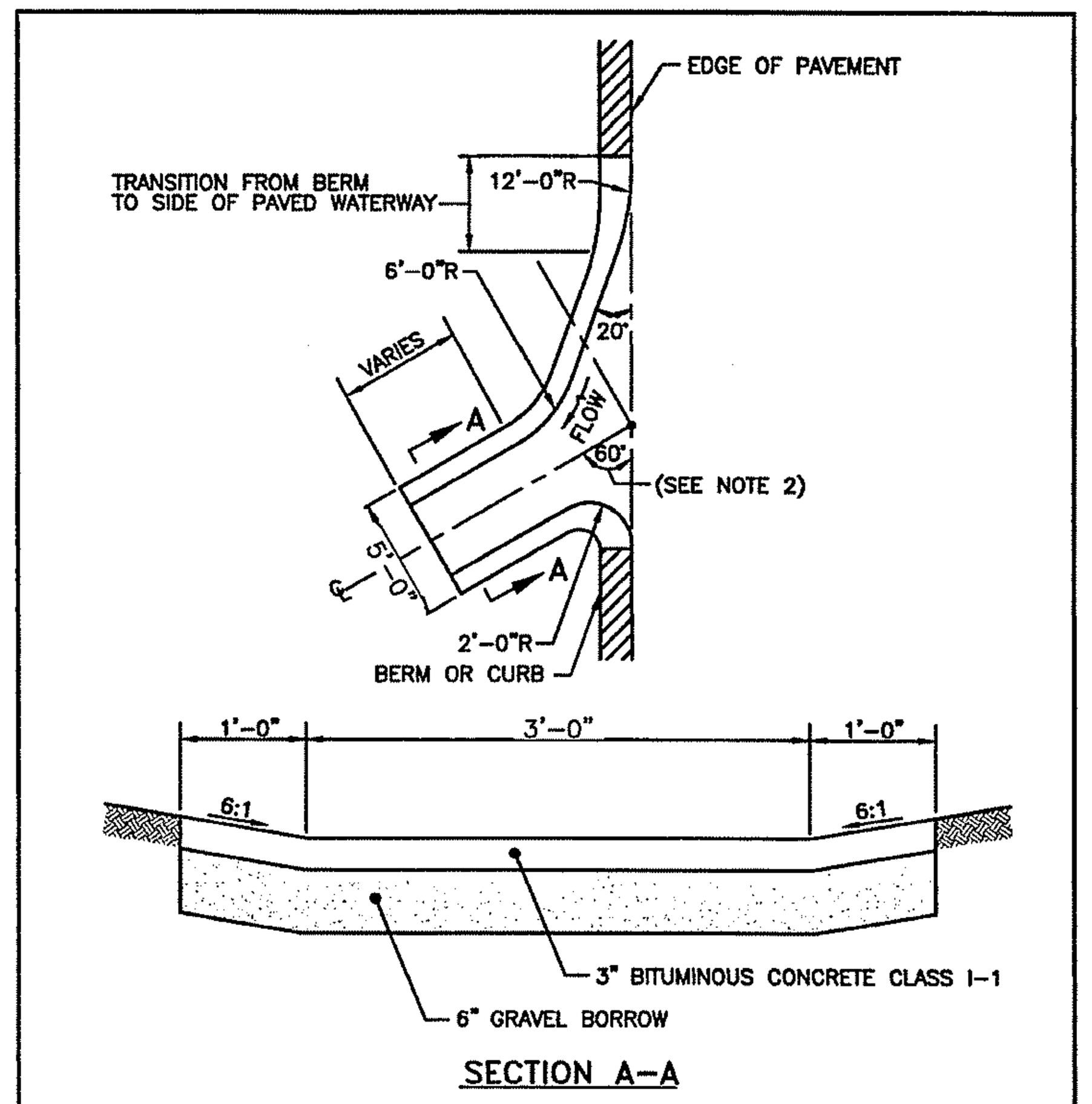
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE
1	MLP	Mar 2005
2	MLP	Sep 2012

6'-0" GRANITE TRANSITION CURB MODIFIED

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 7.3.2 M



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 711 OF THE R.I. STANDARD SPECIFICATIONS.
2. WHEN PAVED WATERWAY IS USED AT A LOW POINT THIS ANGLE SHALL BE 90°.

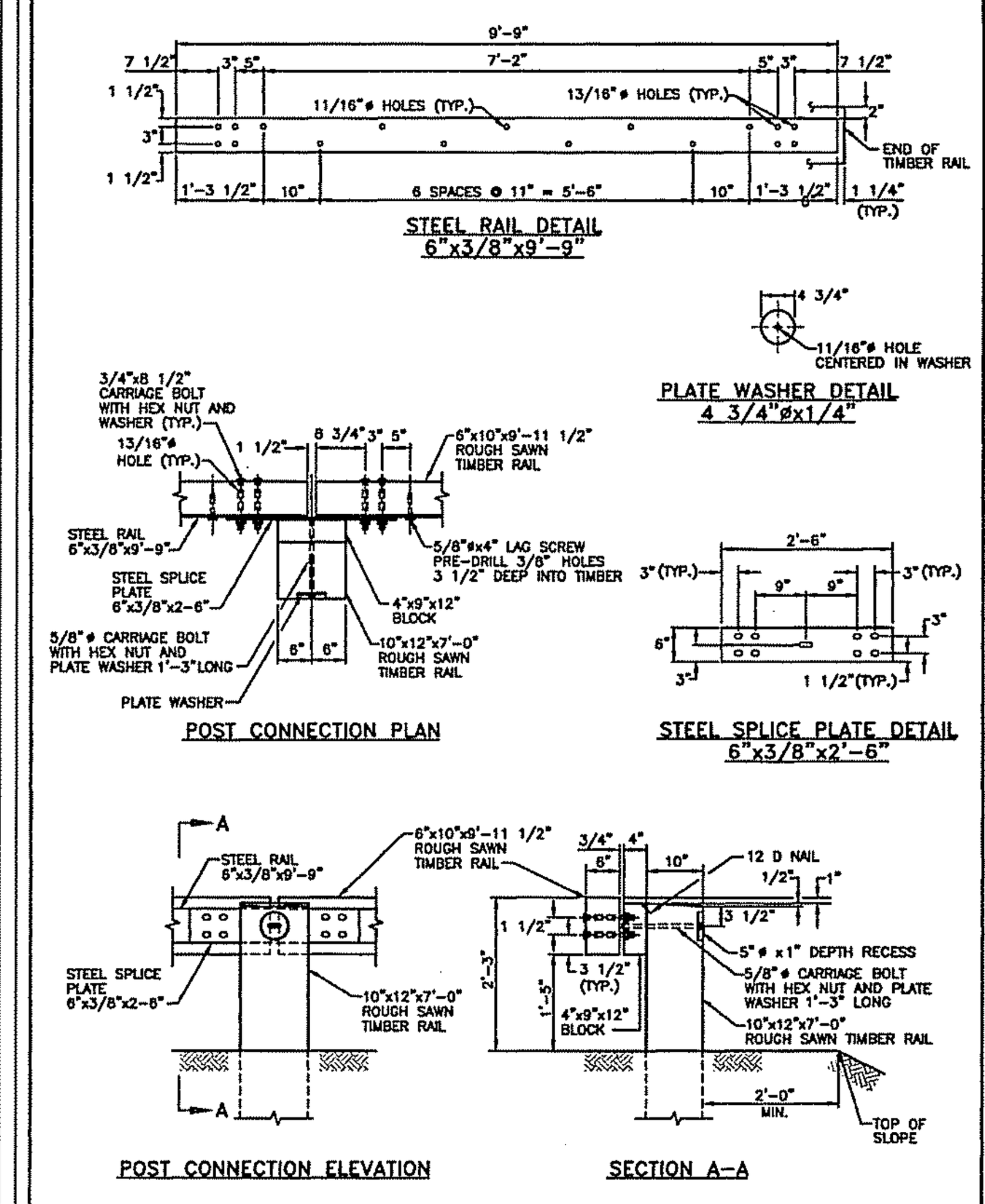
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO. BY DATE

PAVED WATERWAY MODIFIED

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 8.4.0 M



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 900 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL AND FASTENER HARDWARE SHALL BE WEATHERING STEEL AS SPECIFIED.

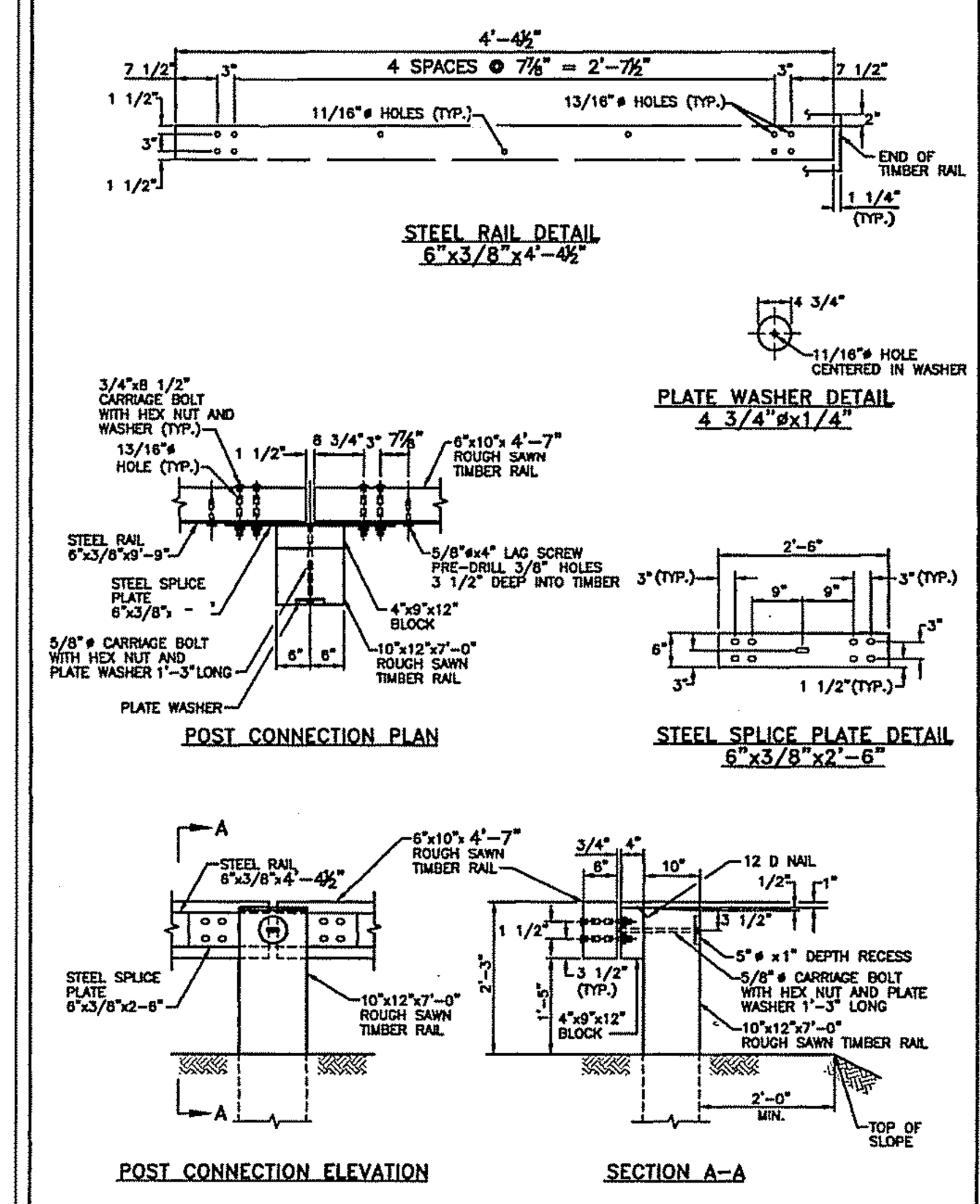
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO. BY DATE

STEEL BACKED TIMBER GUARDRAIL

JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 34.4.0



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 900 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL AND FASTENER HARDWARE SHALL BE WEATHERING STEEL AS SPECIFIED.

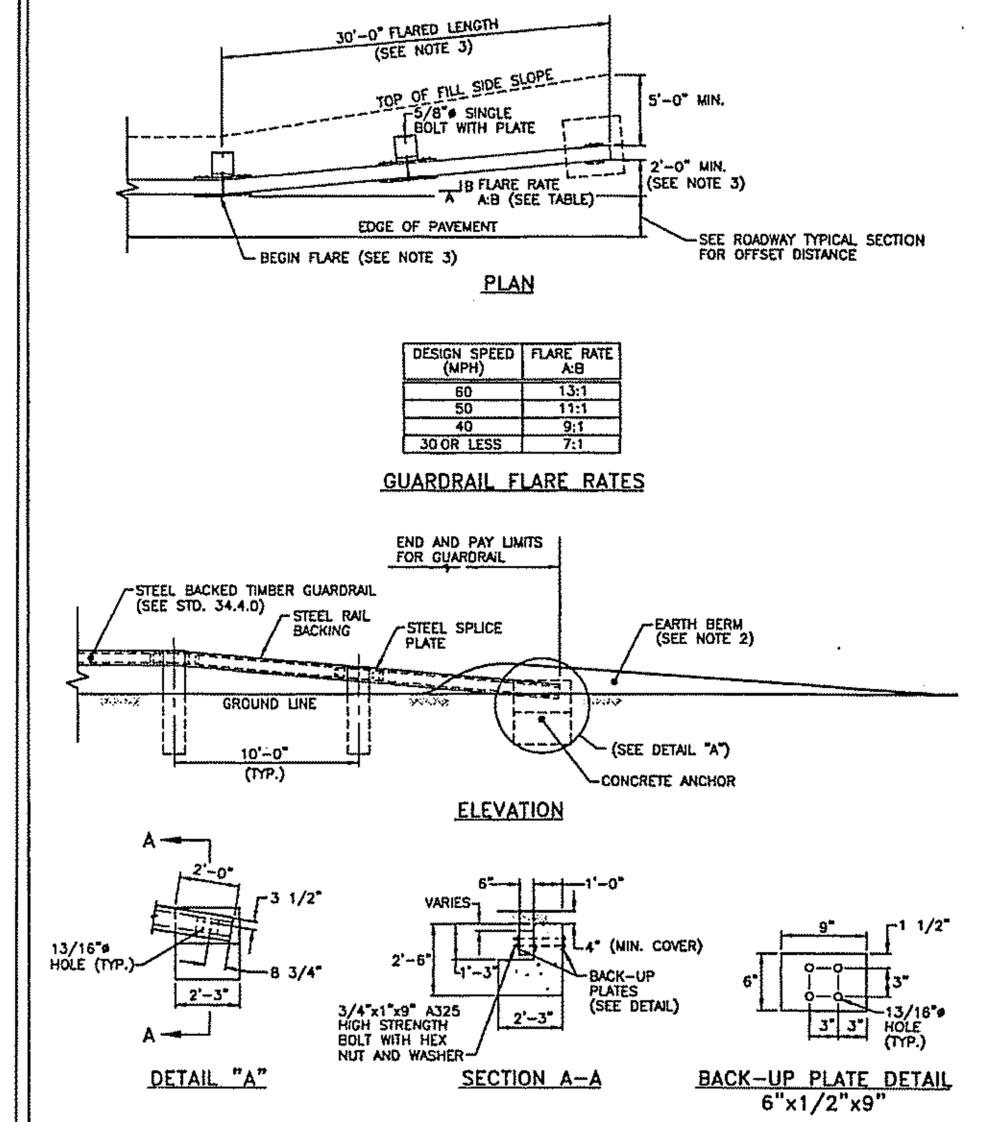
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO. BY DATE

STEEL BACKED TIMBER GUARDRAIL

JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 34.4.0 M



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 900 OF THE R.I. STANDARD SPECIFICATIONS.
2. REFERENCE STD. 34.3.0 FOR CONSTRUCTION OF EARTH BERM.
3. THE GUARDRAIL FLARE SHOWN IN THE PLAN VIEW IS THE MINIMUM LENGTH AND RATE REQUIRED. AS DIRECTED BY THE ENGINEER, THE GUARDRAIL SHOULD BE FLARED SO THE TERMINAL SECTION IS OUTSIDE THE CLEAR ZONE. WHEN THIS IS NOT PRACTICAL, IT SHOULD BE FLARED AS FAR FROM THE ROAD AS PRACTICAL AT THE MAXIMUM RATE INDICATED ON THE GUARDRAIL FLARE RATE TABLE.
4. REFERENCE STD. 34.4.0 FOR TIMBER, STRUCTURAL STEEL AND HARDWARE DETAILS.
5. THE BLOCKS SHALL BE INCLUDED IN THE TERMINAL SECTION, EXCEPT ON THE CONCRETE ANCHOR.

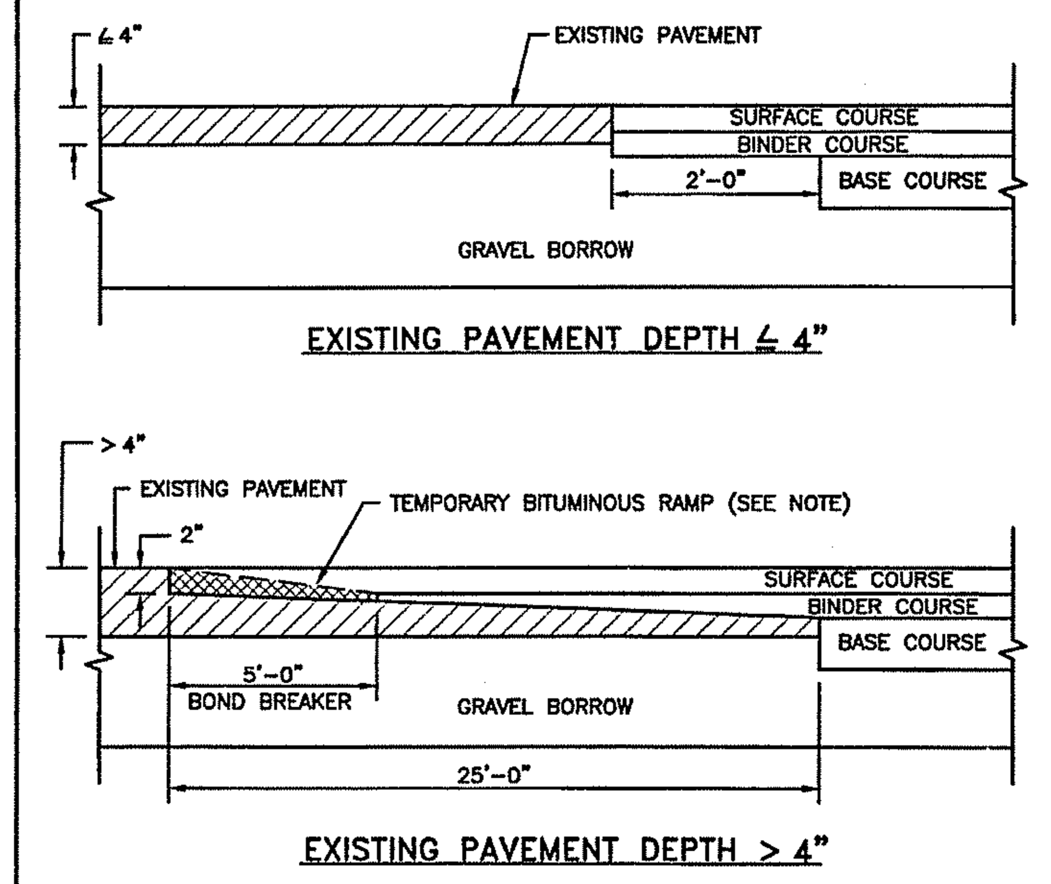
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO. BY DATE

STEEL BACKED TIMBER GUARDRAIL TERMINAL SECTION – TYPE 1

JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 34.4.1



NOTE:
A BOND BREAKER (TAPERED OR EQUIVALENT) WILL BE PLACED 5'-0" FROM THE JOINT AND COVERED WITH THE BINDER COURSE AS THE TEMPORARY RAMP. PRIOR TO PLACING THE SURFACE COURSE, THE BINDER COURSE AND BOND BREAKER WILL BE REMOVED.

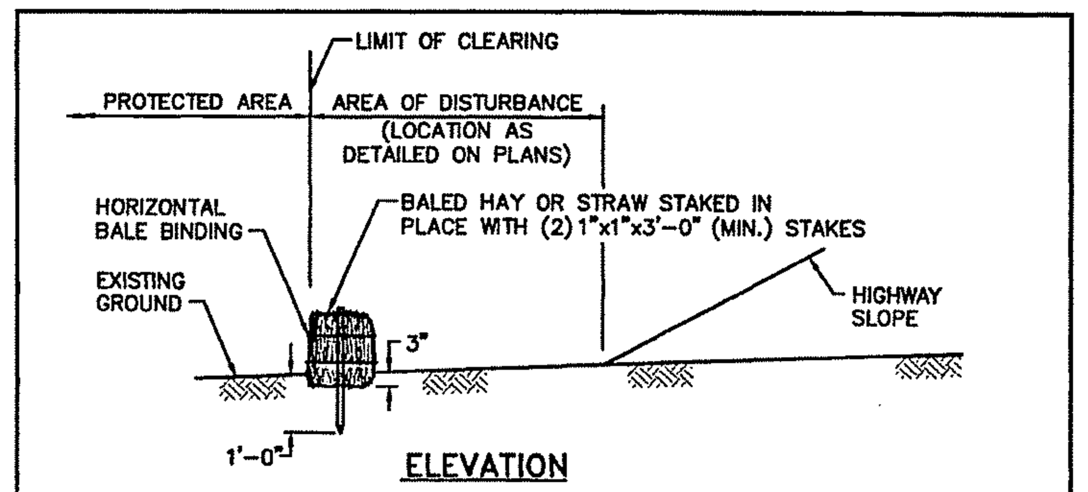
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

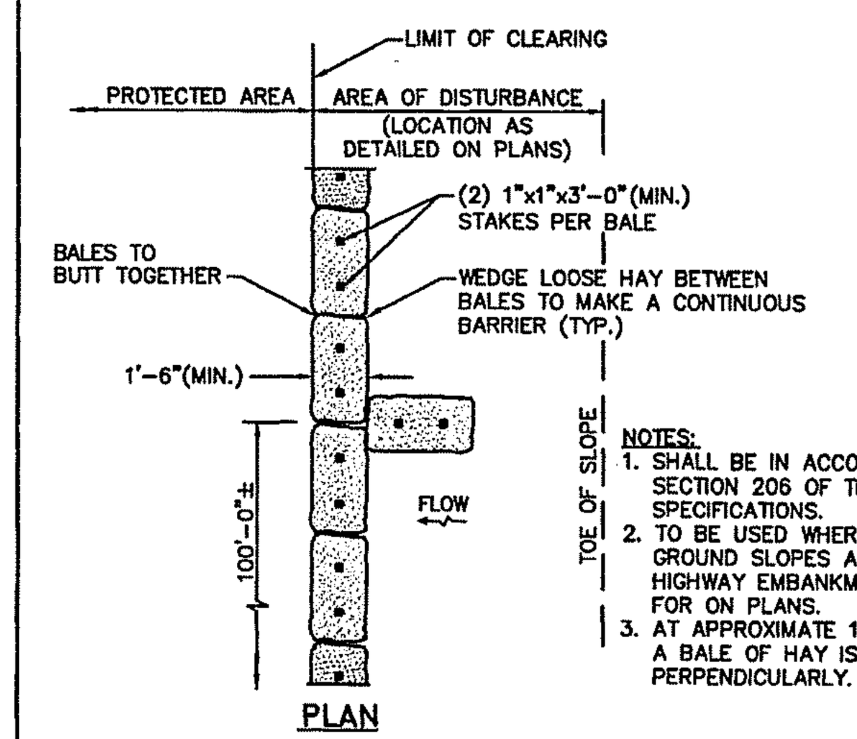
REVISIONS NO. BY DATE

TRANSVERSE PAVEMENT CUT AND MATCH

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 47.1.1





NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE HIGHWAY EMBANKMENT AS CALLED FOR ON PLANS.
3. AT APPROXIMATE 100'-0" INTERVALS A BALE OF HAY IS TO BUTT PERPENDICULARLY.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS NO. BY DATE

BALED HAY EROSION CHECK

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 9.1.0

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
SPECIFIED IN THE LETTER OF APPROVAL
FEB 16 2016 FILE # 15-0179
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

FEB 3 2016

Kambiz Karbassi
STATE OF RHODE ISLAND
No. 4737
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

STANDARD DETAILS

CHECKED BY ________ DATE ________ SCALE NONE

0000X_V1_020_STDDETL

RIDOT Project Bridge
Location (C/T) : Providence / BURRILLVILLE
RIC # : 0000 **FAP # :**
Bridge/Road # :
Design Consult Co. : RIDOT
Geotech Consult Co. : New Engalnd Boring Contractors
Inspector Name/Co. : C. Vargas / RIDOT

BORING # : B-1 **Sheet** 1 **of** 1
RIDOT Database ID # :
Date Start : 6/18/14 **Date End :** 6/18/14
N Coord. : 0 **Ft.**
E Coord. : 0 **Ft.**
Ground Surface Elev., Ft. : 0.0
Elevation Datum NGVD29

Borehole Location
Description: North and Grove

Sampler: Unless otherwise noted, soil sampler consists of a 2 in. split spoon driven using a 140 lb hammer, 30" fall.
Casing: Unless otherwise noted, casing is driven using 300 lb hammer, falling 24 in.
Casing Size: HS Auger

Groundwater Observations				
Date	Time	Depth	Casing at	Stab. Time
06/18/15	00:00	11	---	4 hr

DEPTH Ft.	CASING BLOWS /Ft.	Type & Number	SAMPLER Pen/ Rcy. Core Rcy. & RQD	SAMPLER Depth	Blows per 6 in. (Coring min/ft) [Downpress psi]	SOIL AND ROCK SAMPLE DESCRIPTION Burmister Soil Classification System	Depth of Stratum Change	STRATUM DESCRIPTION	REMARKS
	19	SS-1	24/12	0.0	8-6-9-5	Dry, medium dense, brown/dark brown, FINE SAND, some coarse sand and gravel.			
	25			2.0					
	27								
	12			4.0					
5	14	SS-2	24/6		10-7-9-10	Dry, medium dense, brown, COARSE SAND and gravel, trace fine sand, trace silt.			
	18			6.0					
	29								
	31								
	15			9.0					
10	19	SS-3	24/12		9-5-5-8	Wet, medium dense, brown COARSE SAND, some fine sand, trace gravel, trace silt.			
	27			11.0					
	41								
	56								
	45			14.0					
15	125	SS-4	24/16		51-56-75-68	Wet, very dense, brown, FINE SAND, trace coarse sand, trace silt, trace weathered rock.			
				16.0					
							17.0		
								Top of BEDROCK	
				19.0					
20		C-1	60/24		(5)	Highly WEATHERED BEDROCK			
					(5)				
					(5)				
					(5)				
				24.0	(5)				
25		C-2	60/52		(5)	Competent BEDROCK			
					(5)				
					(5)				
					(5)				
				29.0	(5)		29.0		
30								Bottom of Exploration	

4 to 19 Uncased Hole 19 to 29 Rock Drilling

REMARKS:

Proportions Used	Sampler Type	140# Wt x 30" fall on 2" OD SS Sampler				
		Cohesionless	Density	Cohesive	Consistency	
trace 0 to 10%	SS - Split Spoon	0 - 10	Loose	0 - 4	Soft	RIC # : 0000
little 10 to 20%	UT - Shelby Tube	10 - 30	Medium Dense	4 - 8	Firm	Boring No. : B-1
some 20 to 35%	UP - Fixed Position	30 - 50	Dense	8 - 15	Stiff	Date Completed : 6/18/14
and 35 to 50%	C - Rock Core	50 +	Very Dense	15 - 30	Very Stiff	Database ID No. :
				30 +	Hard	

RIDOT Project Bridge
Location (C/T) : Providence / BURRILLVILLE
RIC # : 0000 **FAP # :**
Bridge/Road # :
Design Consult Co. : RIDOT
Geotech Consult Co. : New Engalnd Boring Contractors
Inspector Name/Co. : C. Vargas / RIDOT

BORING # : B-2 **Sheet** 1 **of** 1
RIDOT Database ID # :
Date Start : 6/18/14 **Date End :** 6/19/14
N Coord. : 0 **Ft.**
E Coord. : 0 **Ft.**
Ground Surface Elev., Ft. : 0.0
Elevation Datum NGVD29

Borehole Location
Description: North and Grove

Sampler: Unless otherwise noted, soil sampler consists of a 2 in. split spoon driven using a 140 lb hammer, 30" fall.
Casing: Unless otherwise noted, casing is driven using 300 lb hammer, falling 24 in.
Casing Size: HS Auger

Groundwater Observations				
Date	Time	Depth	Casing at	Stab. Time
06/19/14	00:00	7.5	19	1 hr

DEPTH Ft.	CASING BLOWS /Ft.	Type & Number	SAMPLER Pen/ Rcy. Core Rcy. & RQD	SAMPLER Depth	Blows per 6 in. (Coring min/ft) [Downpress psi]	SOIL AND ROCK SAMPLE DESCRIPTION Burmister Soil Classification System	Depth of Stratum Change	STRATUM DESCRIPTION	REMARKS
	21	SS-1	24/15	0.0	10-8-7-7	Dry, medium dense, light brown, FINE SAND, trace coarse sand and gravel.			
	28			2.0					
	30								
	17			4.0					
5	15	SS-2	24/6		18-13-11-10	Moist, medium dense, brown, FINE SAND, some coarse sand, trace fine gravel.			
	20			6.0					
	31								
	17								
	5			9.0					
10	8	SS-3	24/8		7-6-5-3	Wet, medium dense, brown, FINE SAND, trace coarse sand and gravel, trace silt, trace roots.			
	10			11.0					
	15								
	25								
	42			14.0					
15	37	SS-4	6/4	14.5	100	Wet, very dense, light brown, COARSE SAND and gravel, trace fine sand, trace weathered rock.			
	50								
	56								
	69						18.0		
				19.0				Top of BEDROCK	
20		C-1	60/48		(8)	Competent BEDROCK			
					(8)				
					(8)				
					(8)				
				24.0	(8)				
25		C-2	60/60		(8)	Competent BEDROCK			
					(8)				
					(8)				
					(8)				
				29.0	(8)		29.0		
30								Bottom of Exploration	

0 to 14.6 Uncased Hole 19 to 29 Rock Drilling

REMARKS:

Proportions Used	Sampler Type	140# Wt x 30" fall on 2" OD SS Sampler				
		Cohesionless	Density	Cohesive	Consistency	
trace 0 to 10%	SS - Split Spoon	0 - 10	Loose	0 - 4	Soft	RIC # : 0000
little 10 to 20%	UT - Shelby Tube	10 - 30	Medium Dense	4 - 8	Firm	Boring No. : B-2
some 20 to 35%	UP - Fixed Position	30 - 50	Dense	8 - 15	Stiff	Date Completed : 6/19/14
and 35 to 50%	C - Rock Core	50 +	Very Dense	15 - 30	Very Stiff	Database ID No. :
				30 +	Hard	

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 16 2016 FILE # 15-0179
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

FEB 3 2016

Kambiz Karbassi
STATE OF RHODE ISLAND
No. 4737
HOPE
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY

TOWN OF
BURRILLVILLE, RHODE ISLAND

BRIDGE REPLACEMENT
NORTH ROAD BRIDGE
BRIDGE NO. 412
BURRILLVILLE, RHODE ISLAND

BORING LOGS

CHECKED BY ________ DATE ________ SCALE NO SCALE