



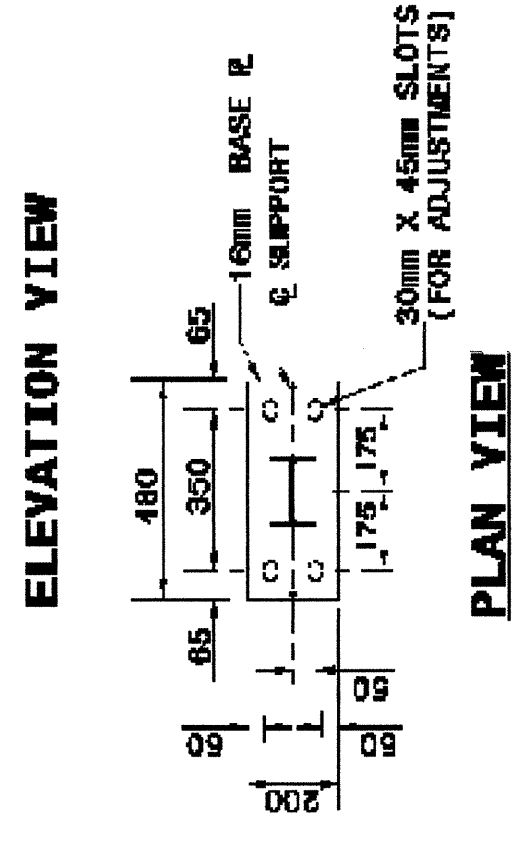
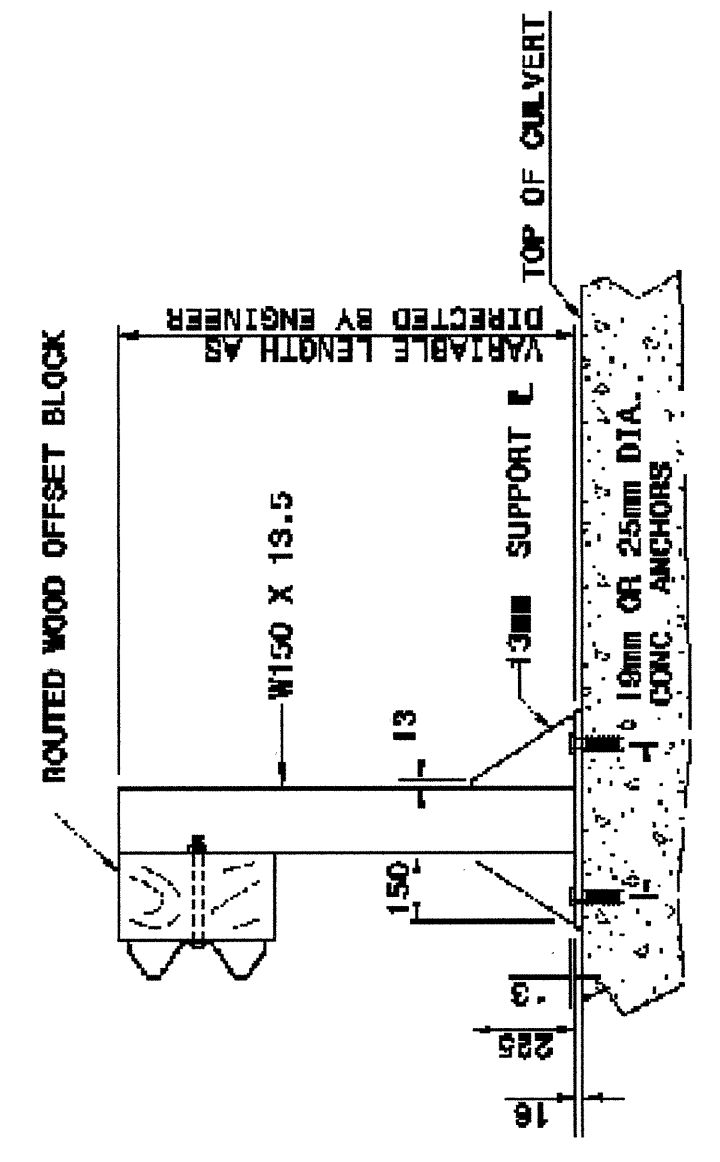
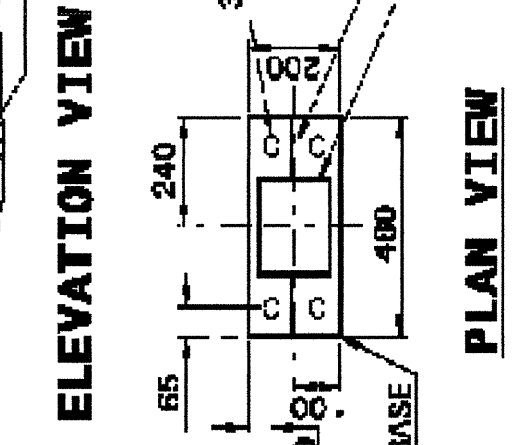
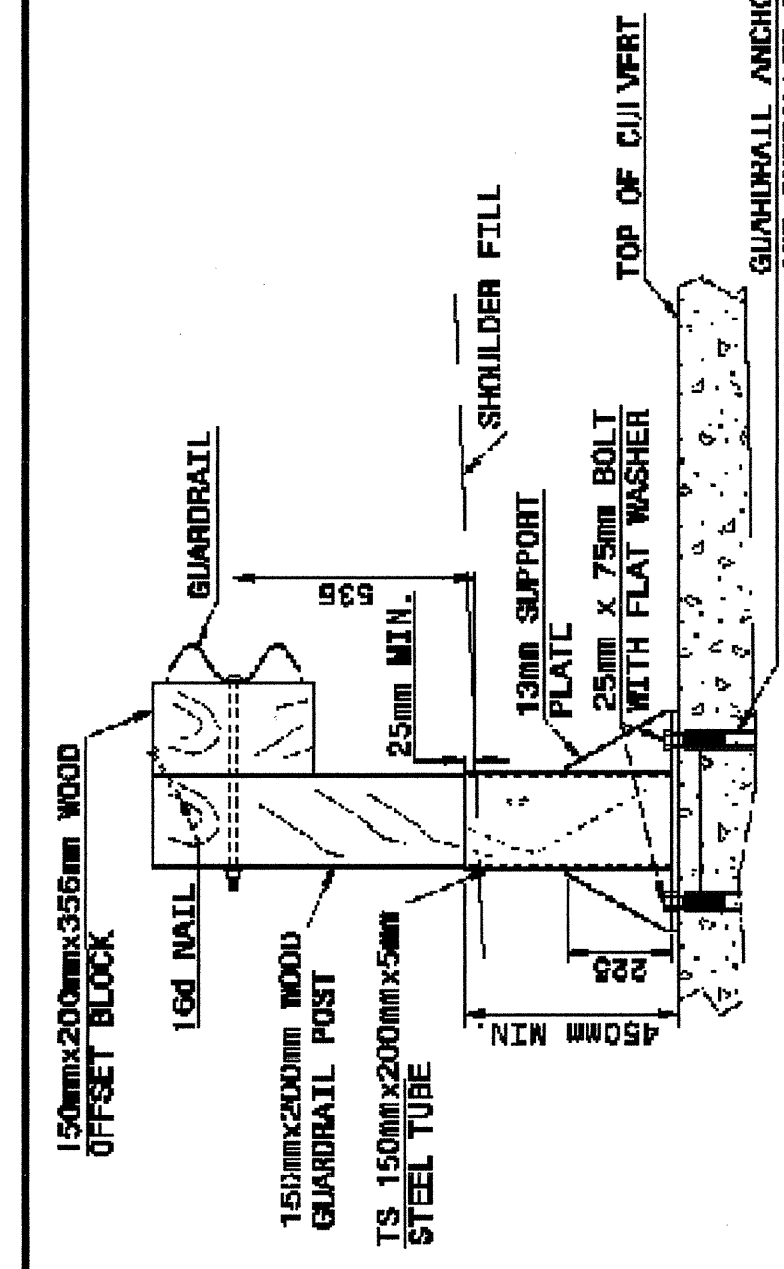
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STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

METRIC DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
 ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

SHEET 1 OF 4
862D03



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 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
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METRIC DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
 ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

SHEET 1 OF 4
862D03

NOTES FOR:
 -POST ANCHORED TO STRUCTURE;
 -USE CONCRETE ANCHORS CONSISTING OF A STUD BOLT WITH NUT AND WASHER. USE STUDS THREADED ON ONE END AND HAVING AN EXPANDED WEDGE ASSEMBLY POSITIONED AROUND A TAPERED AREA AT THE OTHER END. USE ANCHORS WHICH PROVIDE A MINIMUM SAFE HOLDING POWER OF 1300kg. FOR A 19mm OR 25mm DIAMETER BOLT. CALCULATE HOLDING POWER BASED ON 3/4 THE ACTUAL HOLDING POWER OF THE ANCHOR IN 24MPa CONCRETE AS DETERMINED BY AN APPROVED COMMERCIAL TESTING LABORATORY.
 -USE FULL LENGTH 6mm BUILT UP WELDS AT ALL LOCATIONS OF CONTACT BETWEEN THE BASE PLATE, SUPPORT PLATES AND STEEL POST OR STEEL TUBE.
 -USE POST AND POST BASE PLATES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION TO CONFORM TO A.S.T.M. A-123.
 -USE WOOD POSTS WHICH FIT SNAUGLY IN THE STEEL TUBE WITH A MAXIMUM OF 3mm CLEARANCE BETWEEN TUBE WALL AND POST.

NEW STRUCTURES:
 -ATTACH POST TO INSERT ASSEMBLY UNITS (USING ANCHOR BOLTS SUPPLIED WITH INSERTS) WHICH HAVE BEEN CAST INTO THE STRUCTURE DURING CONSTRUCTION.

EXISTING STRUCTURES:
 -USE CONCRETE ANCHORS CONSISTING OF A STUD BOLT WITH NUT AND WASHER. USE STUDS THREADED ON ONE END AND HAVING AN EXPANDED WEDGE ASSEMBLY POSITIONED AROUND A TAPERED AREA AT THE OTHER END. USE ANCHORS WHICH PROVIDE A MINIMUM SAFE HOLDING POWER OF 1300kg. FOR A 19mm OR 25mm DIAMETER BOLT. CALCULATE HOLDING POWER BASED ON 3/4 THE ACTUAL HOLDING POWER OF THE ANCHOR IN 24MPa CONCRETE AS DETERMINED BY AN APPROVED COMMERCIAL TESTING LABORATORY.

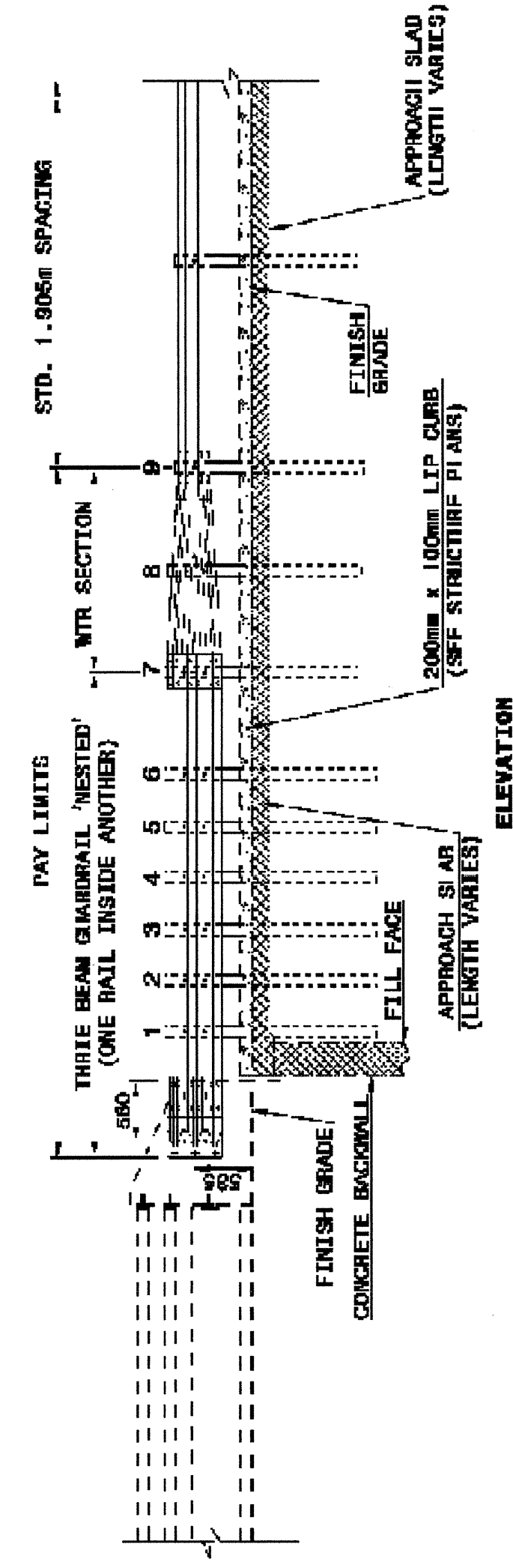
-USE ANCHORS GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-123. SIZE HOLES FOR THE CONCRETE ANCHORS IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S RECOMMENDATIONS. DRILL HOLES VERTICALLY. FINISH DOCUMENTATION OF HOLE SIZE RECOMMENDED FOR THE SPECIFIED ANCHOR TO THE ENGINEER BEFORE DRILLING HOLES. THOROUGHLY CLEAN HOLES FOR ANCHORS OF ALL CONCRETE CHIPS, DIRT, GREASE, OIL, ETC. BEFORE ANCHORS ARE INSTALLED. REPAIR ALL DAMAGE CAUSED BY THIS WORK TO THE SATISFACTION OF THE ENGINEER.

Note:
 This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

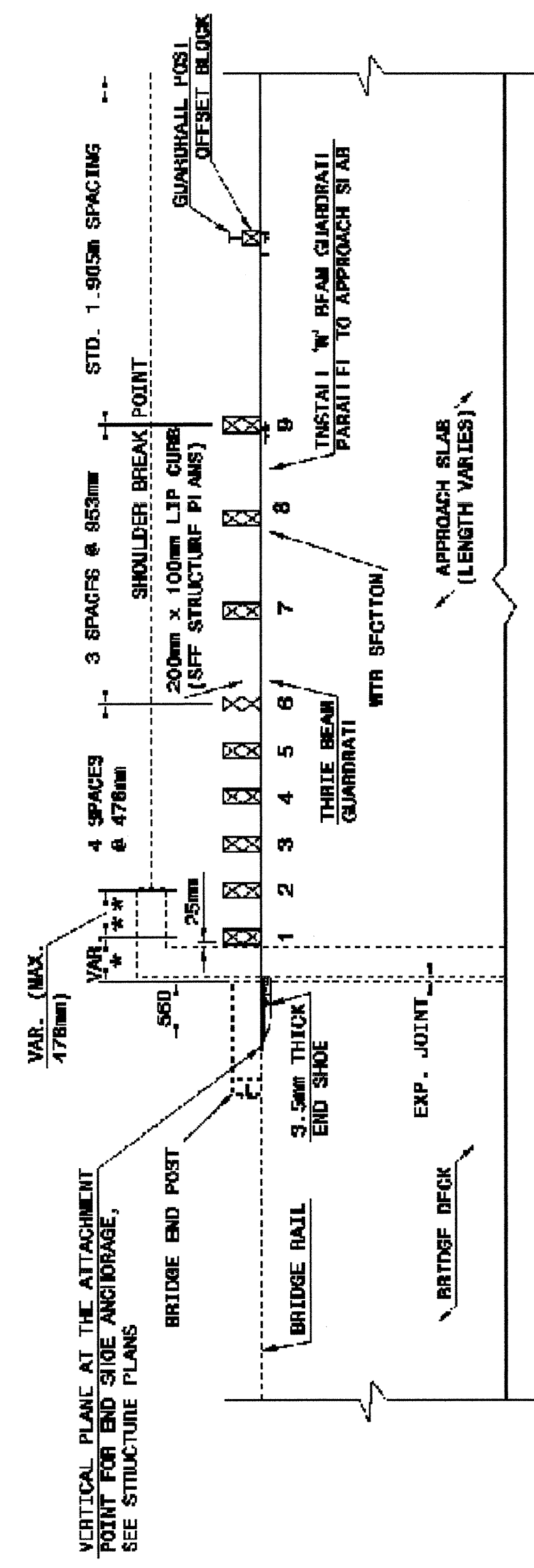
STATE OF NORTH CAROLINA
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METRIC DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
 GUARDRAIL ANCHOR UNIT, TYPE III
 FOR ATTACHMENT TO RAIL ON BRIDGE

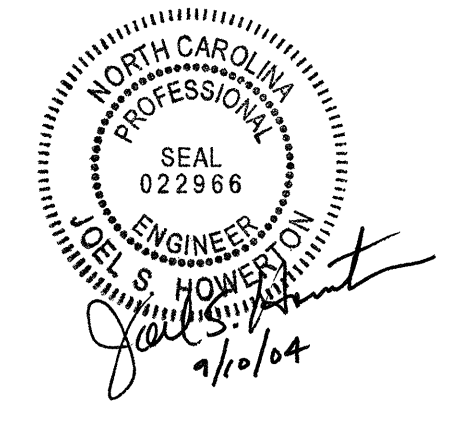
SHEET 2 OF 4
862D03



NOTE:
 -POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 15° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 -THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 200mm IF CONCRETE BACKWALL IS NOT PRESENT.
 -SHOULDER BERM GUTTER MUST BE INSTALLED WITHIN THE PAY LIMITS IF THE ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -USE NO STIFF POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 -SEE SHEET 4 FOR POST SECTIONS 1 THRU 9.



Note:
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ORIGINAL BY: 2002 STANDARDS DATE: 01-5-02
 MODIFIED BY: E.E. WARD DATE: 04-07-04
 CHECKED BY: DATE:
 FILE SPEC.: stds/standards/standards/metric/862d03m.dwg