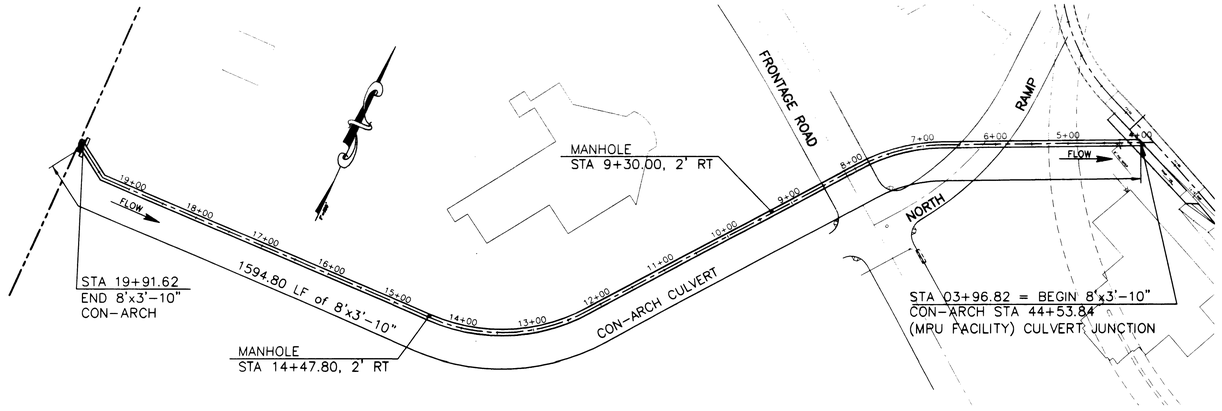
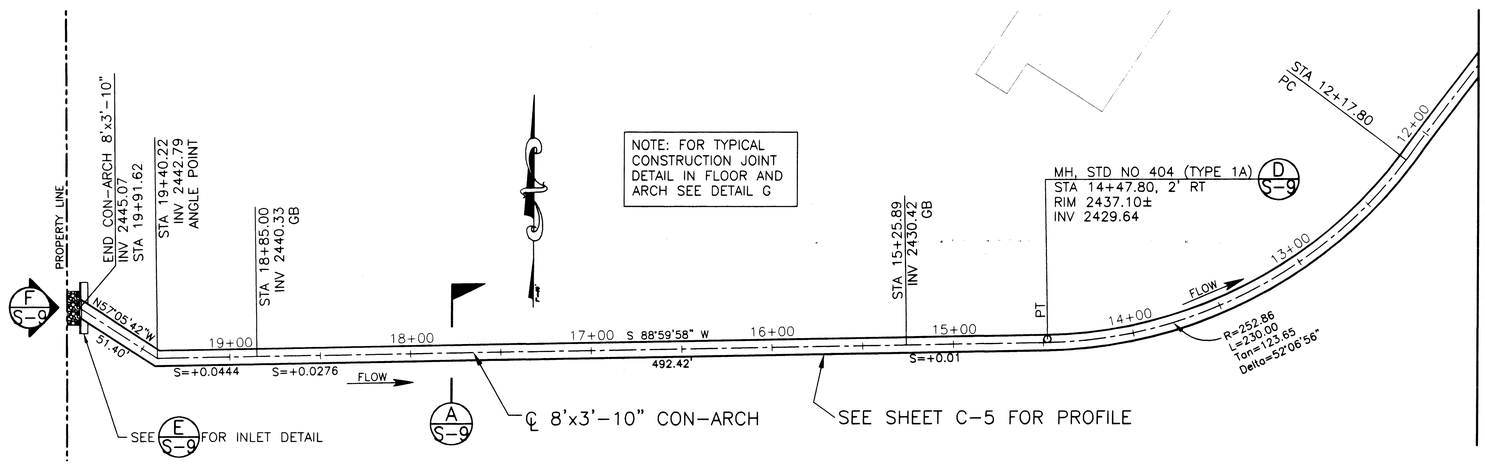


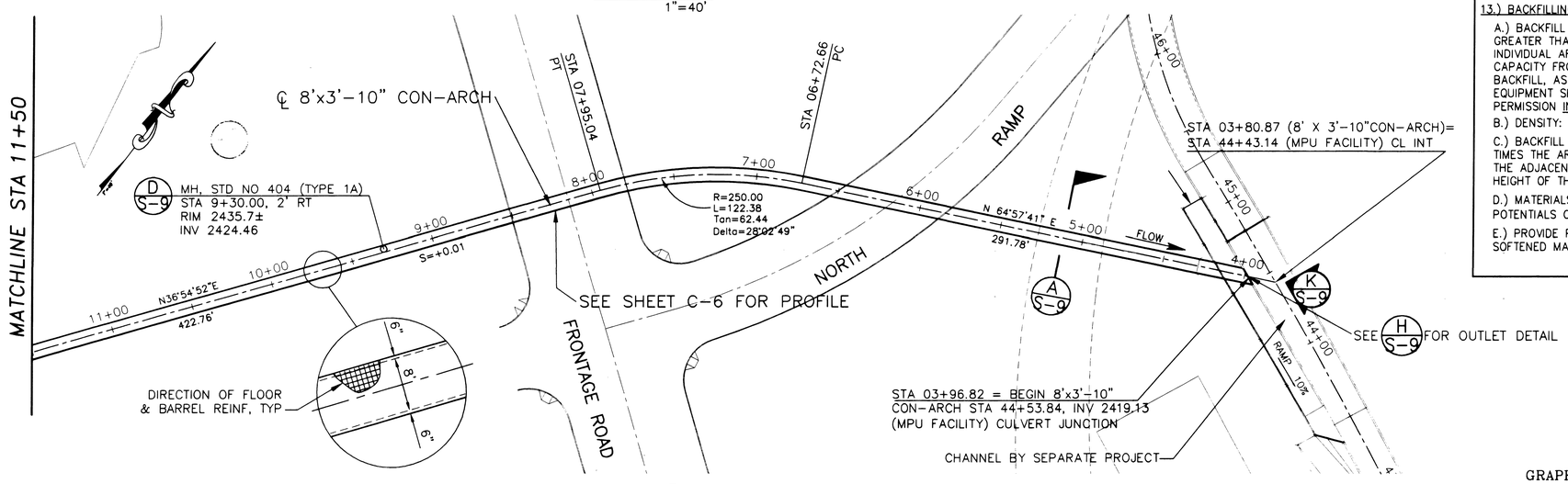
AREA PLAN FOR CON-ARCH 8'x3'-10" CULVERT

SCALE: 1"=100'



PLAN

1"=40'



PLAN

1"=40'

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

NOTE: WHEN USING REINF. WITH METRIC BAR NUMBERS:
#3 = #10 (METRIC)
#4 = #13 (METRIC)
#5 = #16 (METRIC)
#6 = #19 (METRIC)

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

CON-ARCH

NOTICE: These drawings and the information contained herein are the property of C.L. Ridgeway Construction Company, Tucson, Arizona and Watson Engineering, Tucson, Arizona. Con-Arch culverts are a proprietary product and require special expertise to design and construct. The unauthorized use of these drawings is strictly prohibited.

GENERAL NOTES

1.) DESIGN SPECIFICATIONS: AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES," 1996 ED. AND REVISIONS THERETO EXCEPT WHERE NOTED OTHERWISE.

2.) CONSTRUCTION SPECIFICATIONS: NDOT STANDARD SPECIFICATIONS, CURRENT EDITION, EXCEPT WHERE NOTED OTHERWISE.

3.) LOADING CLASS: HS20-44

4.) DEAD LOADS: FOR SELF WEIGHT OF STRUCTURE, REINF. CONCRETE = 150 POUNDS PER CUBIC FOOT (PCF), BACKFILL AROUND STRUCTURE = 120 PCF.

5.) DESIGN METHODOLOGY:

A.) CONCRETE ARCH: DESIGN BASED ON FINITE ELEMENT SOIL-STRUCTURE INTERACTION COMPUTER PROGRAM STUDIES UTILIZING AASHTO LRFD. PROGRAM CALCULATES DESIGN MOMENTS FOR ARCH, WALLS, AND SLAB ACTING AS A UNIT WITH SURROUNDING SOIL.

B.) CONCRETE REINFORCING REQUIREMENTS COMPUTED BY THE ULTIMATE STRENGTH DESIGN METHOD.

6.) REINFORCING STEEL:

AT C.L. RIDGEWAY'S OPTION CONVENTIONAL REINFORCING OR WELDED WIRE FABRIC MAY BE USED IN ANY COMBINATION AS LONG AS REINFORCEMENT END AREAS ARE EQUAL. ALL STRUCTURAL CALCULATIONS ARE BASED ON GRADE 60 REINFORCEMENT U.N.O.

A.) CONVENTIONAL REINFORCEMENT: ASTM A615 GRADE 60 EXCEPT #3 BARS WHICH MAY BE GRADE 40 OR GRADE 60. MINIMUM COVER 3 INCHES WHERE CONCRETE CAST AGAINST EARTH, 2 INCHES FOR #6 THROUGH #11 OR 1 1/2 INCHES FOR #5 AND SMALLER BARS WHERE CONCRETE SURFACE IS EXPOSED TO EARTH BACKFILL OR WEATHER U. N O. (UNLESS NOTED OTHERWISE).

B.) WELDED WIRE FABRIC REINFORCEMENT: WELDED DEFORMED WIRE FABRIC, FY =75,000 PSI MIN., CONFORMING TO AASHTO M 55 OR M 221.

7.) REINFORCING BENDS AND LAPS: BENDS AND HOOKS SHALL CONFORM TO A. C. I. STD. 315-80 U. N. O. BEND DIMENSIONS ARE FROM OUT TO OUT AND LAPS SHALL BE 40 BAR DIAMETERS MINIMUM U. N. O. WELDED WIRE FABRIC LAPS 1'-0" MIN. U. N. O.

8.) CONCRETE AND SHOTCRETE:

CONCRETE AND SHOTCRETE SHALL CONFORM TO THE REQUIREMENTS OF UBC-97 TABLE 19-A-4 WHICH REQUIRES A 0.45 WATER-CEMENT RATIO TYPE V CEMENT AND A MINIMUM FC'@ 28 DAYS OF 4500 PSI. MAX AGGREGATE SIZES: FLOOR CONCRETE: 1½" MINUS, ARCH BARREL AND WALL CONCRETE: ¾" MINUS

A.) SHOTCRETE: FC' = 4,500 PSI @ 28 DAYS MIXED FOR AND PLACED BY THE WET MIX PLACEMENT PROCESS.

B.) FLOOR CONCRETE: FC' = 4,500 PSI @ 28 DAYS & SHALL BE MODIFIED AA CLASS PURSUANT TO CLARK COUNTY BLUE BOOK STANDARDS.

C.) ALL OTHER CONCRETE: FC' = 4,500 PSI @28 DAYS & SHALL BE MODIFIED DA CLASS PURSUANT TO CLARK COUNTY BLUE BOOK STANDARDS.

D.)ALL CONCRETE AND SHOTCRETE SHALL BE MIXED WITH TYPE V CEMENT.

9.) ALL EARTHWORK SHALL CONFORM TO RECOMMENDATIONS IN PROJECT GEOTECHNICAL REPORT "GEOTECHNICAL EXPLORATION REPORT: ROADWAYS- CENTENNIAL PLAZA" AT TROPICAL PKWAY. AND BUFFALO DR. IN LAS VEGAS, NV. DATED NOV. 11, 1998 BY TERRACON (PHONE: 702-597-9393) AND ADDENDUMS THERETO.

10.) WORKMANSHIP: CHAMFER EXPOSED CORNERS 3/4 INCHES U. N. O. FINISH EXPOSED CONCRETE SURFACES PER STANDARD SPECIFICATIONS.

11.) SCALE: DO NOT SCALE DIMENSIONS FROM THE DRAWINGS.

12.) STRIPPING: FORMS MAY BE STRIPPED AFTER A TWELVE HOUR INITIAL SET OR WHEN, IN THE OPINION OF THE ENGINEER, THE SHOTCRETE HAS TAKEN ADEQUATE SET TO ALLOW STRIPPING TO TAKE PLACE. BACKFILLING MAY PROCEED WHEN ARCH SHOTCRETE CYLINDER STRENGTH HAS REACHED F'c=1,500 PSI OR WHEN, IN THE OPINION OF THE ENGINEER, THE ARCH SHOTCRETE HAS TAKEN ADEQUATE SET TO ALLOW BACKFILLING TO PROCEED.

13.) BACKFILLING:

A.) BACKFILL SHALL BE PLACED IN NO GREATER THAN ONE FOOT LIFTS WITH NO GREATER THAN A ONE FOOT DIFFERENTIAL IN BACKFILL HEIGHT TO EACH SIDE OF ANY INDIVIDUAL ARCH. NO EQUIPMENT HEAVIER THAN A RUBBER TIRED THREE YARD CAPACITY FRONT END LOADER IS PERMITTED TO PASS OVER THE STRUCTURE UNTIL THE BACKFILL, AS SPECIFIED, IS COMPLETE IN PLACE. SCRAPERS AND OTHER SUCH HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER THE STRUCTURE UNLESS SPECIFIC PERMISSION IN WRITING IS ISSUED BY THE ENGINEER.

B.) DENSITY: 95% OF STD. PROCTOR MAXIMUM DENSITY AS DETERMINED BY ASTM D-698.

C.) BACKFILL ZONE: THE BACKFILL ZONE SHALL EXTEND OUT TO THE LESSOR OF 1.5 TIMES THE ARCH SPAN FROM THE OUTSIDE EDGE OF THE ARCH OR THE DISTANCE TO THE ADJACENT SLOPED NATIVE MATERIAL. THIS ZONE SHALL EXTEND UPWARD TO THE HEIGHT OF THE PAVEMENT SUBGRADE.

D.) MATERIALS: NATIVE AND IMPORTED GRANULAR SOILS WITH MAXIMUM EXPANSIVE POTENTIALS OF 1.8% AND A MAXIMUM PARTICLE SIZE OF 3".

E.) PROVIDE POSITIVE DRAINAGE (DAYLIGHT) AWAY FROM SITE. REMOVE WATER SOFTENED MATERIAL FROM BENEATH SLABS OR FOOTINGS.

REV	DATE	BY	REVISION

CENTENNIAL CENTRE
A Limited Liability Company
7448 W. SAHARA AVENUE
LAS VEGAS, NEVADA 89117
(702) 222-1410

WATSON ENGINEERING, LLC
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

SHEET: NORTHERN CON-ARCH PLAN

TITLE: CENTENNIAL CENTRE
MPU FACILITY RCHO 0097
CITY OF LAS VEGAS NEVADA

DRAWN BY: A. SAORA 3/14/00
DESIGNED BY: T. SAORA 3/14/00
CHECKED BY: T. SAORA 3/14/00
SCALE: AS NOTED
PROJECT NO: 99-194

SEAL: PROFESSIONAL ENGINEER STATE OF NEBRASKA THOMAS A. SACRA III 6/17/00 CIVIL No. 10039

SHEET S-8
19 OF 24 SHEETS

DRAWING NO. 107-V3170

23564