GENERAL STRUCTURAL NOTES

GENERAL

STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND BALANCING WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR.

UNLESS OTHERWISE SHOWN ON ALL STRUCTURAL DRAWINGS THE FINISH GRADE AROUND STRUCTURES IS SHOWN THUS ~~~~ INDICATING EITHER GROUND SURFACE, TOP OF CONCRETE SLAB OR AC PAVEMENT. FOR DETAILS OF FINISH SURFACES SEE CIVIL DRAWINGS.

STRUCTURAL

DESIGN IN ACCORDANCE WITH IBC 2009, CCRFCD, AND AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION, 2010.

LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

CONCRETE

UNLESS OTHERWISE NOTED OR SPECIFIED, ALL STRUCTURAL CONCRETE SHALL BE MODIFIED MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI IN 28 DAYS. CEMENT USED IN STRUCTURAL CONCRETE SHALL BE TYPE V CEMENT UNLESS OTHERWISE NOTED.

REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615 "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 60.

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" LATEST EDITION.

TOLERANCES IN PLACING REINFORCEMENT SHALL BE:

± 3/8 INCH FOR MEMBERS WITH D ≤ 8 INCHES
± 1/2 INCH FOR MEMBERS WITH D > 8 INCHES

ALL KEYWAYS IN CONSTRUCTION JOINTS, WHERE SHOWN, SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.

DOWELS, WATERSTOPS AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.

UNLESS OTHERWISE INDICATED, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED:

A) IN SLABS #5 RISER BARS AT 36 INCHES O.C. MAXIMUM TO SUPPORT TOP REINFORCING BARS.

B) IN WALLS WITH 2 CURTAINS #3 U OR Z SHAPE SPACERS AT 6 FEET O.C. EACH WAY.

METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.

DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE PLACED AFTER CONCRETE HAS BEEN POURED.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS. LAPS OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF ACI-318.

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM OF 2" OF CLEARANCE SHALL BE PROVIDED AT ALL TIMES.

UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOR CONCRETE PLACED AGAINST EARTH	3"
FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH	2"
FOR CONCRETE NOT EXPOSED TO WEATHER. OR IN CONTACT WITH WATER OR EARTH	1-1/2"

UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED.

DOWELS SHALL BE EPOXIED USING SIMPSON SET HIGH STRENGTH EPOXY OR APPROVED EQUAL.

EXCAVATION AND BACKFILL

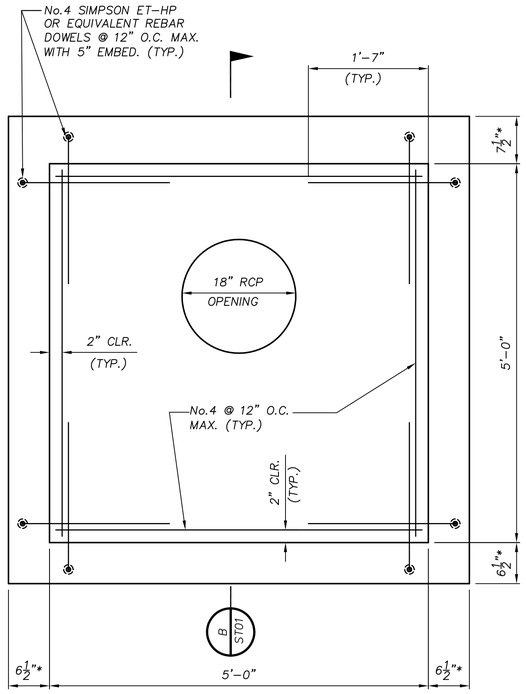
PREPARATION OF FOUNDATION MATERIAL LOCATED BELOW THE BOTTOM OF WALL FOOTINGS AND BACKFILL SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS NOTED IN THE SPECIFICATIONS.

HEAVY CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED A DISTANCE OF AT LEAST 1/2 OF THE TOTAL DESIGN WALL HEIGHT AWAY FROM THE WALLS WHILE THE BACKFILL SOILS ARE PLACED. BACKFILL BEHIND THE WALL SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OUTLINED IN THE SOILS REPORT. HAND OPERATED COMPACTION EQUIPMENT SHOULD BE USED TO COMPACT BACKFILL SOILS WITHIN A 3 FOOT WIDE ZONE BEHIND WALLS UNLESS OTHERWISE NOTED IN THE SOILS REPORT. THE CONTRACTOR SHALL EXERCISE CARE DURING BACKFILL OPERATIONS IN ORDER TO ASSURE THAT EXCESSIVE STRESSES ARE NOT INDUCED ON THE WALL DUE TO OVERCOMPACTION.

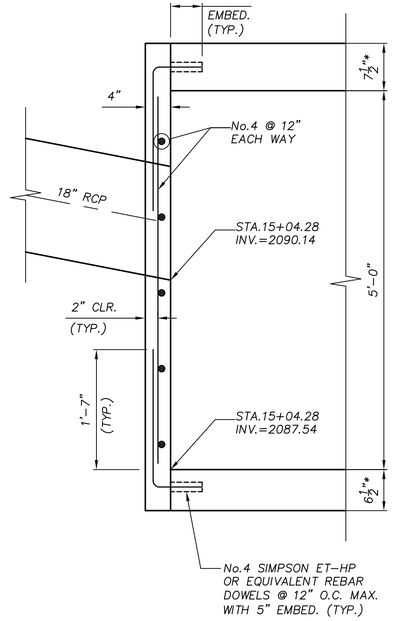
TRENCH EXCAVATION AND SHORING SHALL CONFORM TO OSHA REGULATIONS 29 CFR PART 1926, SUBPART C.

FOUNDATIONS

FOUNDATIONS HAVE BEEN DESIGNED FOLLOWING THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT PROJECT NO. 20112945E1 AS PREPARED BY GES, INC. AND DATED AUGUST 08, 2012.



ELEVATION (A ST01)
SCALE: 1" = 1'-0"



SECTION (B ST01)
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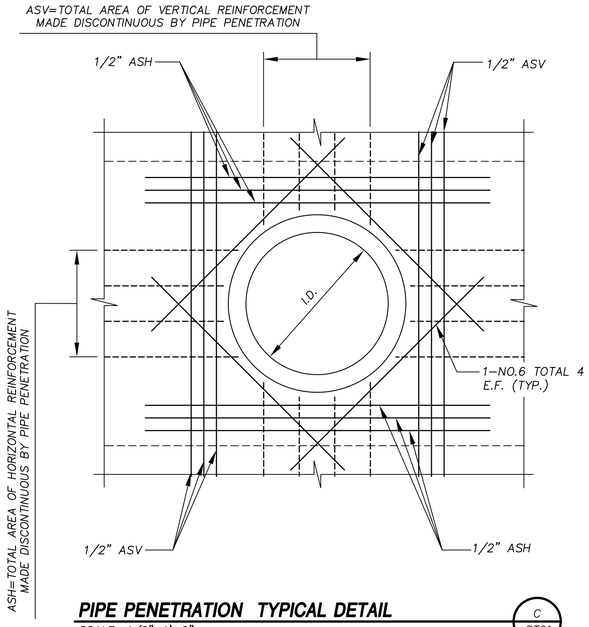


PIPE PENETRATION TYPICAL DETAIL (C ST01)
SCALE: 1/2"=1'-0"

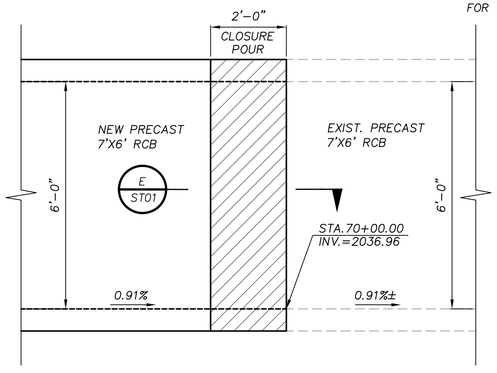
PIPE PENETRATION NOTES:

1. ALL BARS LENGTHS TO BE I.D. + 3'-10".
2. ASH= TOTAL AREA OF HORIZONTAL REINFORCEMENT MADE DISCONTINUOUS BY PIPE PENETRATION.
3. ASV= TOTAL AREA OF VERTICAL REINFORCEMENT MADE DISCONTINUOUS BY PIPE PENETRATION.
4. ASH AND ASV BARS SHALL BE EVENLY DISTRIBUTED ON EACH SIDE OF PIPE PENETRATION, AND PLACED IN ADDITION TO TYPICAL WALL REINFORCEMENT SHOWN.
5. ASH AND ASV BARS SHALL BE UNIFORMLY SPACED OVER A DISTANCE NOT TO EXCEED ¼ I.D. ON EACH SIDE OF THE PIPE PENETRATION.
6. BEND BARS AS REQUIRED TO FIT WALL DIMENSIONS.

END CAP STA. 15+04.28

NOTE:

*NDOT STD. 2010 B-20.1.2 THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL DESIGN



ELEVATION (D ST01)
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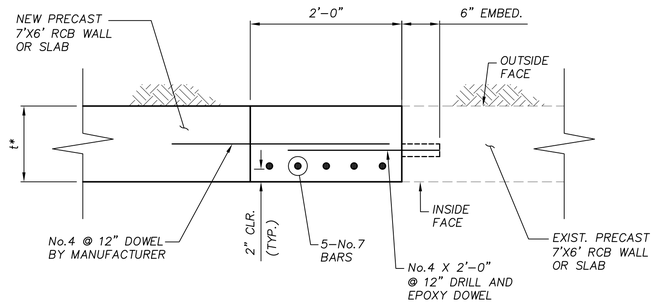

SECTION (E ST01)
SCALE: 1" = 1'-0"

7'X6' RCB CONNECTION STA. 70+00.00

ATKINS
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DEPARTMENT OF PUBLIC WORKS
ENGINEERING DESIGN SECTION

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CITY PROGRAM MANAGER: MARK SORENSEN, P.E.
PROJECT MANAGER: MATT BAIRD, P.E.
DESIGN BY: JL CHECK BY: JAC
DRAWN BY: DJE DATE: JUNE 2013

TITLE: FREEWAY CHANNEL - WASHINGTON MLK BOULEVARD TO RANCHO DRIVE (WASHINGTON AVE. STORM DRAIN)

SHEET: GENERAL STRUCTURAL NOTES AND DETAILS

PROFESSIONAL ENGINEER-STATE OF NEVADA
JAIME A. CHANG
EXP. 12-31-14
CIVIL
No. 14023

SHEET: ST01
61 of 63
DRAWING# 731-90

NOT FOR CONSTRUCTION 70% SUBMITTAL

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