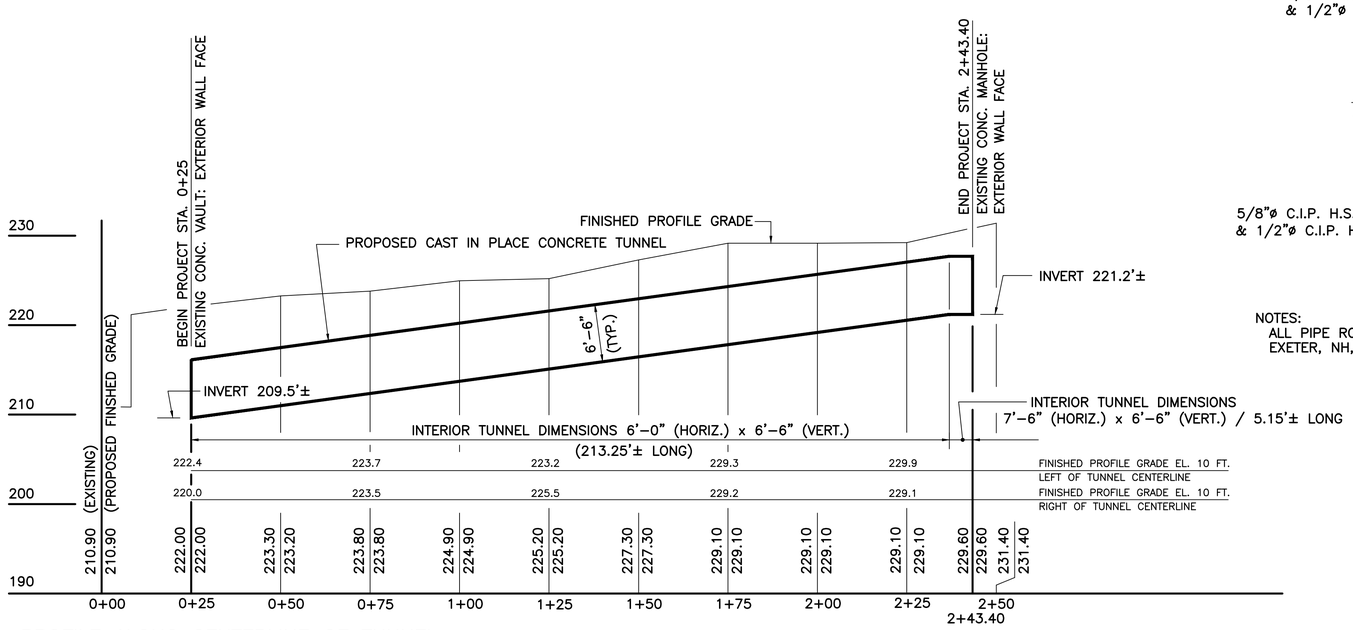


PROFILE ALONG CENTERLINE OF TUNNEL

SCALE: 1"= 20' HORIZONTAL 1"= 8' VERTICAL

HOR. 0 20 40 80 120

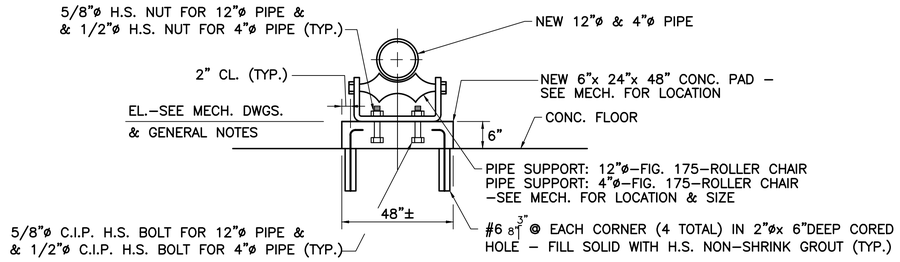
VERT. 0 8 16 32 48

SCALE IN FEET

NOTES:

VERTICAL CONSTRUCTION JOINTS SHALL BE INSTALLED THROUGH THE WALLS, BASE SLAB AND ROOF SLAB ALONG THE FOLLOWING LOCATIONS: STATIONS 0+50, 0+75, 1+25, 1+50, 2+00 AND 2+25 – SEE TYPICAL DETAILS.

VERTICAL EXPANSION JOINTS SHALL BE INSTALLED THROUGH THE WALLS, BASE SLAB AND ROOF SLAB ALONG THE FOLLOWING LOCATIONS: STATIONS 1+00 AND 1+75 – SEE TYPICAL DETAILS.



TYPICAL PIPE SUPPORT DETAIL ON CONCRETE PAD

NO SCALE

NOTES:
ALL PIPE ROLLER CHAIRS SHALL BE MANUFACTURED BY GRINNELL SUPPLY SALES COMPANY, EXETER, NH, INSTALL AS PER MANUF. SPECIFICATIONS.

GENERAL NOTES

CONSTRUCTION
STRUCTURAL WORK SHALL CONFORM THE REQUIREMENTS OF "THE COMMONWEALTH **OF MASSACHUSETTS STATE BUILDING CODE"**

GENERAL
EXAMINE MECHANICAL, EXISTING SITE AND EXISTING UTILITY PLANS AND DRAWINGS FOR VERIFICATION OF LOCATION AND DIMENSIONS OF PIPES, UTILITIES, CHASES, INSERTS, OPENINGS TO BE CAST IN TUNNEL WALLS, SLEEVES AND OTHER PROJECT REQUIREMENTS NOT SHOWN **ON STRUCTURAL DRAWINGS.**

SECTIONS AND DETAILS SHOWN SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

DESIGN
IN ACCORDANCE WITH THE 1996 SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS FOR A HS20–44 LOADING.

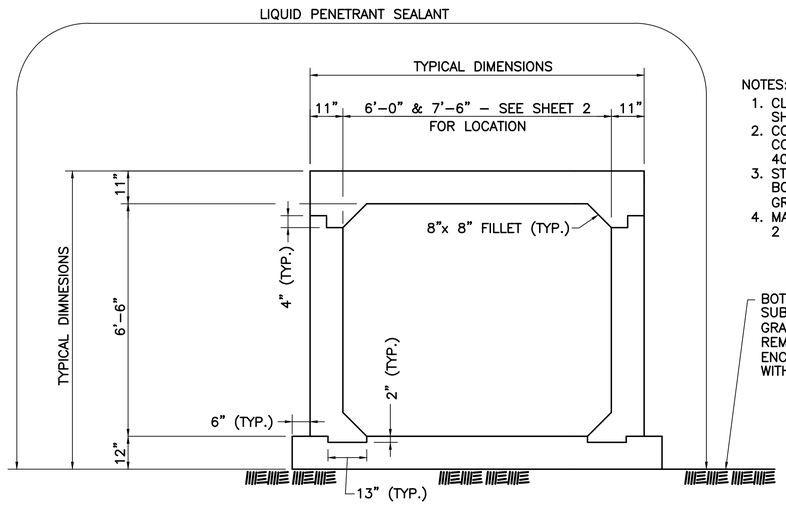
EXISTING CONSTRUCTION
DIMENSIONS SHOWN ON EXISTING STRUCTURES AND RELATED DETAILS WERE TAKEN AT THE TIME OF FIELD INSPECTION, SURVEY AND FROM ORIGINAL DESIGN DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND EXISTING DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL THE CONTRACTOR HAS MADE THE REQUIRED MEASUREMENTS ON THE EXISTING STRUCTURE AND THE EXTENT OF THE PROPOSED WORK **HAS BEEN APPROVED BY THE ENGINEER.**

EXISTING PLANS
PLANS OF THE EXISTING STRUCTURES ARE AVAILABLE IN THE OFFICE OF THE PHYSICAL PLANT DEPARTMENT, UNIVERSITY OF MASSACHUSETTS, AMHERST, MA.

FOUNDATIONS
MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED IN CONSTRUCTION **WITH APPROVAL OF THE ENGINEER.**

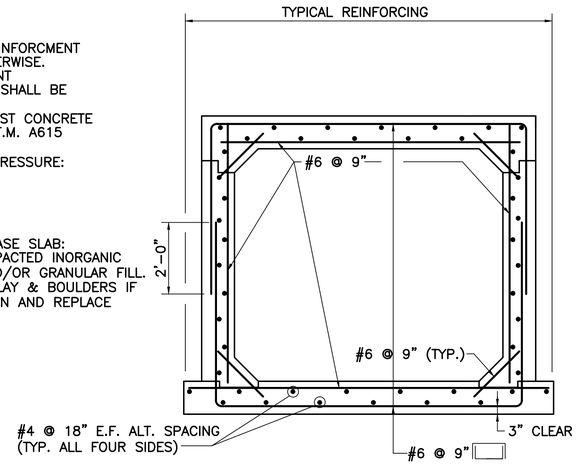
UNSUITABLE MATERIAL
ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATION **OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.**

REINFORCEMENT
REINFORCING BARS SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A615 GRADE 60. UNLESS OTHERWISE SHOWN ON THE PLANS, ALL #4 BARS SHALL BE LAPPED 24" AND ALL #5 BARS SHALL BE LAPPED 30". FOR HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE BELOW THE BAR THE LAP LENGTHS SHALL BE 33" FOR #4 BARS AND 42" FOR #5 BARS. IF THE ABOVE BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER **BARS SHALL BE LAPPED AS SHOWN ON THE PLANS.**



NOTES:
1. CLEAR CONCRETE COVER OVER REINFORCMENT SHALL BE 2" UNLESS NOTED OTHERWISE.
2. COMPRESSIVE STRENGTH OF CEMENT CONCRETE MASONRY FOR TUNNEL SHALL BE 4000 PSI
3. STEEL REINFORCEMENT FOR PRECAST CONCRETE BOX CULVERT AND SHALL BE A.S.T.M. A615 GRADE 60.
4. MAXIMUM APPLIED SOIL BEARING PRESSURE: 2 TONS PER SQUARE FOOT.

BOTTOM OF C.I.P. CONC. TUNNEL BASE SLAB: SUBGRADE SHALL CONSIST OF COMPACTED INORGANIC GRAVEL WITH A TRACE OF CLAY AND/OR GRANULAR FILL. REMOVE ALL LOAM, LOAMY SAND, CLAY & BOULDERS IF ENCOUNTERED DURING CONSTRUCTION AND REPLACE WITH GRANULAR FILL.



TYPICAL CAST IN PLACE CONCRETE TUNNEL

SCALE: 1/2"=1'–0"

NO.	DATE	BY	REVISION DESCRIPTION

Physical Plant Dept.
University of Massachusetts, Amherst MA
Sheet 1 of 7 Sheets

JDB Consulting Engineers
835 Samoset Rd., Eastham, MA 02642

Underground Steam Line
Tunnel
Profile and Details

PROJ. NO. 00197
CHECKED BY:
DRAWN BY: JDB
DATE: 4/97
SCALE: As Noted

S1