TAI
THE REINFORCED EARTH COMPANY

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GENERAL NOTES

1. THIS MAGAZINE SHALL BE CONSTRUCTED USING THE TECHSPAN PRECAST ARCH SYSTEM.® THE TECHSPAN SYSTEM PROTECTED BY U.S. PATENT No. 4026639, APPLICATION No. 5212, AS DEVELOPED BY THE REINFORCED EARTH COMPANY.

2. THE TECHSPAN SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RECOMMENDATTIONS OF THE PATENT HOLDER AND THE SPECIFICATIONS.

3. QUESTIONS ON ITEMS SHOWN ON DRAWINGS S1a, S1b, S1c, S1d, S2, S3, S3a, s3b, s3c s3d SHALL BE ADDRESSED TO THE REINFORCED EARTH COMPANY. FOR DRAWINGS S4 TO S7, E1 AND E2 CALL COE.

4. DIMENSIONS SHOWN IN BRACKETS ARE IN MILLIMETERS. ALL REBAR METRIC SIZES ARE IN MILLIMETERS.

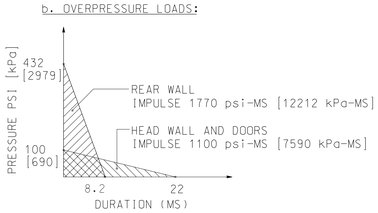
GENERAL NOTES - TECHSPAN

1. DESIGN IS BASED ON:

   a. STATIC LOADS:

   SOIL DENSITY 120 PCF= 19.6 kN/m^3
   SOIL ANGLE OF REPOSE 30 DEGREES
   LIVE LOAD SURCHARGE 100 PSF= 4.8 kPa

   b. OVERPRESSURE LOADS:



   OVERPRESSURE LOADS FOR HEADWALL, DOORS AND REAR WALL ARE FROM FRONT-TO-REAR SPACING OF 2.0 $W^{1/3}$ WHERE W IS THE NET EXPLOSIVE WEIGHT.

2. REINFORCED CONCRETE DESIGN METHOD; ULTIMATE STRENGTH DESIGN.

3. ARCH MAY BE ERECTED 7 DAYS AFTER FOOTING IS CAST. HOWEVER, BACKFILLING MAY NOT COMMENCE UNTIL 14 DAYS AFTER FOOTING IS CAST.

4. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 P.S.I. @ 28 DAYS [28 MPa]. ALL ARCH SEGMENTS SHALL ATTAIN THE FULL 28 DAY COMPRESSIVE STRENGTH PRIOR TO INSTALLATION. REINFORCING STEEL SHALL BE ASTM A615 WITH THE FOLLOWING GRADES:

   TIES -GRADE 40
   ALL OTHERS -GRADE 60

5. FOR INFORMATION PERTAINING TO ARCH CONSTRUCTION PLEASE REFER TO THE TECHSPAN CONSTRUCTION AND QUALITY CONTROL MANUAL.

6. IN FROST AREAS PROVIDE NONFROST-SUSCEPTIBLE MATERIAL UNDER HEADWALL FOOTING, TO FULL DEPTH OF FROST PENETRATION, OR LOWER BOTTOM OF FOOTING TO FROST PENETRATION DEPTH.

7. NOTE TO CONTRACTORS

   ONLY THE FOLLOWING MATERIALS ARE SUPPLIED BY THE REINFORCED EARTH COMPANY:

   - TECHSPAN ARCH SEGMENTS
   - IMPERMEABLE MEMBRANE (FOR ARCH SEGMENTS ONLY)
   - ANY OTHER MATERIAL CALLED FOR IN THE CONTRACT PLANS OR SPECIFICATIONS ARE TO BE SUPPLIED BY THE CONTRACTOR.

REINFORCED EARTH NOTES

DESIGN CRITERIA

1. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE REINFORCED EARTH VOLUME, METHODS OF CONSTRUCTION AND QUALITY OF PREFABRICATED MATERIALS SHALL CONFORM TO THE CONTRACTING AGENCY'S TECHNICAL SPECIFICATIONS FOR REINFORCED EARTH WALLS.

2. SOILS CHARACTERISTICS ASSUMED FOR DESIGN:

   SELECT GRANULAR BACKFILL
   Ø = 34 degrees C = 0 p.s.f., γ = p.c.f. [19.6kN/m^3]

   RANDOM BACKFILL
   Ø = 30 degrees C = 0 p.s.f., γ = p.c.f. [19.6kN/m^3]

   FOUNDATION MATERIAL
   Ø = 30 degrees C = 0 p.s.f. [0.0 kN/m^3]

3. THE MAXIMUM APPLIED BEARING PRESSURE AT THE FOUNDATION LEVEL IS AS SHOWN ON THE WALL ELEVATIONS FOR EACH DESIGN CASE. IT IS THE RESPONSIBILITY OF THE OWNER TO DETERMINE THAT THIS APPLIED BEARING PRESSURE IS ALLOWABLE FOR THAT LOCATION.

4. ANY UNSUITABLE FOUNDATION MATERIAL BELOW THE REINFORCED EARTH VOLUME, AS DETERMINED BY THE ENGINEER, SHALL BE EXCAVATED AND REPLACED WITH SUITABLE MATERIAL OR OTHERWISE STABILIZED AS DIRECTED BY THE ENGINEER.

5. REINFORCING STRIPS FOR REINFORCED EARTH WALLS SHALL BE 50mm WIDE AND 4mm THICK, AND SHALL CONFORM TO THE PHYSICAL AND MECHANICAL PROPERTIES OF ASTM A-572 GRADE 65. GALVANIZATION SHALL BE APPLIED IN ACCORDANCE WITH ASTM A-123.

6. BACKFILL MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR REINFORCED EARTH WALLS TO A LEVEL OF 2" (±) [50] ABOVE THE TIE STRIPS EMBEDDED IN THE PANELS. INSTALLATION OF REINFORCING STRIPS SHALL BE PERMITTED ONLY AFTER PLACEMENT AND COMPACTION OF THE BACKFILL MATERIAL HAS REACHED THE REQUIRED LEVEL.

7. COMPACTION AND OPERATION EQUIPMENT SHALL BE KEPT A MINIMUM DISTANCE OF 3'-0" [1000] FROM THE BACK FACE OF THE REINFORCED EARTH PANELS. COMPACTION WITHIN 3'-0" [1000] OF THE REINFORCED EARTH PANELS SHALL BE ACHIEVED WITH AT LEAST THREE (3) PASSES OF A LIGHTWEIGHT MECHANICAL TAMPER, ROLLER OR VIBRATORY SYSTEM. NO COMPACTION DENSITY TESTS SHALL BE TAKEN WITHIN THE 3 FT. ZONE [1000].

8. IF EXISTING OR FUTURE STRUCTURES, PIPES, FOUNDATIONS OR GUARDRAIL POSTS WHICH ARE WITHIN THE REINFORCED EARTH VOLUME INTERFERE WITH THE NORMAL PLACEMENT OF REINFORCING STRIPS AND SPECIFIC DIRECTION HAS NOT BEEN PROVIDED ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE REINFORCED EARTH COMPANY TO DETERMINE WHAT COURSE OF ACTION SHOULD BE TAKEN.

9. ALL DETAILING AND CHECKING OF REINFORCING STEEL FOR ANY C.I.P. CONCRETE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR.

10. FOR OTHER INFORMATION PERTAINING TO WALL CONSTRUCTION PLEASE REFER TO THE REINFORCED EARTH CONSTRUCTION MANUAL.

11. THE CONTRACTOR IS RESPONSIBLE FOR GRADUALLY DEFLECTING UPPER REINFORCING STRIPS DOWNWARD TO AVOID CONFLICTS WITH PAVING AND SUBGRADE PREPARATION. THE CONTRACTOR'S ATTENTION IS DIRECTED ESPECIALLY TO SITUATIONS WHERE ROADWAY SUPERELEVATION AND/OR SOIL MIXING ARE ANTICIPATED.

12. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING STORM WATER DRAINAGE IN THE VICINITY OF THE WALL DURING CONSTRUCTION. STORM WATER RUNOFF IS TO BE COLLECTED AND DISCHARGED AWAY FROM THE WALL AND REINFORCED BACKFILL.

MATERIALS NOTES

13. NOMINAL STRIP LENGTHS

    THE REINFORCING STRIP LENGTHS SHOWN ON THE PLANS, MEASURED FROM BACK FACE OF PANEL, ARE THE NOMINAL LENGTHS REQUIRED BY CALCULATION. THE ACTUAL FABRICATED STRIP LENGTHS ARE OFTEN LONGER (UP TO 6" [150]) DUE TO MANUFACTURING TOLERANCES. THE REQUIRED HORIZONTAL LIMIT OF GRANULAR BACKFILL IS EQUAL TO THE NOMINAL STRIP LENGTH. ADDITIONAL GRANULAR BACKFILL BEYOND THE NOMINAL STRIP LENGTH IS NOT REQUIRED BY CALCULATION.

14. SELECT BACKFILL QUANTITY

    THE SELECT BACKFILL QUANTITY INDICATED BY THE REINFORCED EARTH COMPANY IS CALCULATED BY MULTIPLYING THE NOMINAL STRIP LENGTHS SHOWN ON THE PLANS (PLUS 0 FT.) BY THEIR TRIBUTARY WALL SURFACE AREA AND CONVERTING THE RESULT TO A NEATLINE CUBIC YARD QUANTITY. THIS INFORMATION IS FURNISHED FOR THE CONTRACTOR'S INFORMATION ONLY AND IS NOT INTENDED TO REPRESENT THE ACTUAL QUANTITIES REQUIRED TO COMPLETE THE WORK. THE CONTRACTOR MUST CALCULATE HIS OWN EXCAVATION AND BACKFILL QUANTITIES BASED UPON THE SPECIFIC CONDITIONS OF THE PROJECT.

15. PANEL FINISH

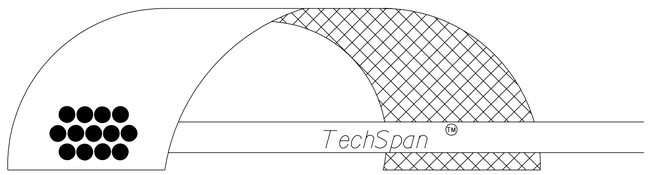
    THE PRECAST PANELS FOR THIS PROJECT SHALL HAVE A PLAIN FINISH UNLESS OTHERWISE SPECIFIED.

16. NOTE TO CONTRACTORS

    ONLY THE FOLLOWING MATERIALS ARE SUPPLIED BY THE REINFORCED EARTH COMPANY:

    - PRECAST CONCRETE FACING PANELS
    - REINFORCING STRIPS
    - BOLT SETS (FOR ATTACHING PANELS TO THE REINFORCING STRIPS)
    - BEARING BLOCKS
    - RUBBER SHIMS
    - FILTER CLOTH AND ADHESIVE (FOR PANEL JOINTS ONLY)

    ANY OTHER MATERIALS CALLED FOR IN THE CONTRACT PLANS OR SPECIFICATIONS ARE TO BE SUPPLIED BY THE CONTRACTOR. ANY JOINT MATERIALS SHOWN AT THE INTERFACE OF PRECAST PANELS AND CAST-IN-PLACE CONCRETE STRUCTURES ARE TO BE SUPPLIED BY THE ERECTION CONTRACTOR. ALL SANDBLASTING, PAINTING, SEALERS OR OTHER SPECIAL APPLIED COATINGS ARE ALSO SUPPLIED/INSTALLED BY THE CONTRACTOR IN THE FIELD FOLLOWING PANEL ERECTION.



US Army Corps of Engineers

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