GENERAL

1. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, AND THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION AND SHALL TAKE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. INCLUDING, BUT NOT LIMITED TO, SHORING, BRACING, AND TEMPORARY EXCAVATIONS, AND SHALL BE IN ACCORDANCE WITH ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK AND SHALL NOTIFY THE ARCHITECT AND ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
4. ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE PROCEEDING WITH WORK SO INVOLVED.
5. ANY CONFLICTS ON THE DRAWINGS MUST BE RESOLVED WITH THE ARCHITECT AND ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.
6. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN THE AREA TO BE EXCAVATED PRIOR TO BEGINNING EXCAVATION.
7. NO PIPES, DUCTS, SLEEVES, CHASES, ETC. SHALL BE PLACED IN SLABS, BEAMS, OR WALLS UNLESS SPECIFICALLY SHOWN OR NOTED. NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, OR OTHER ITEMS UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FOR INSTALLATION OF ANY ADDITIONAL PIPES, DUCTS, OR OTHER ITEMS. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS.
8. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE LOCAL BUILDING CODE AND SHALL COMPLY WITH AND BE INSTALLED IN ACCORDANCE WITH ALL THE REQUIREMENTS OF ALL LEGALLY CONSTITUTED PUBLIC AUTHORITIES HAVING JURISDICTION, INCLUDING ALL COUNTY AND LOCAL ORDINANCES, AND THE SAFETY ORDERS OF THE STATE INDUSTRIAL ACCIDENT COMMISSION, OSHA.
9. WHERE A SECTION OR TYPICAL DETAIL IS SHOWN FOR ONE CONDITION IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
10. NO CHANGES ARE TO BE MADE TO THESE PLANS WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF MST MANUFACTURING, LLC.
11. ANY REFERENCE TO THE WORDS APPROVED, OR APPROVAL IN THESE DOCUMENTS SHALL BE HERE DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR HIS SUB-CONTRACTORS OF ANY LIABILITY IN FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFIED.
12. CONCRETE SLAB-ON-GRADE HAS NOT BEEN DESIGNED FOR CONSTRUCTION LOADS OR SPECIFIC OCCUPANT SERVICE LOADS BY THE STRUCTURAL ENGINEER.
13. VIBRATIONAL EFFECTS OF MECHANICAL EQUIPMENT HAVE NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER.
14. THIS SHEET AND SUBSEQUENT DRAWINGS CONTAIN MANUFACTURER'S MINIMUM RECOMMENDATIONS ONLY. SPECIFICATIONS OF PROJECT STRUCTURAL ENGINEER SUPERCEDE THESE RECOMMENDATIONS.
15. SEE ENGINEER AND/OR ARCHITECT'S SPECIFICATIONS AND ADDITIONAL REQUIREMENTS.OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE OBSERVATION OF SAFETY METHODS, BRACING, OR SUPPORT AND SHALL NOT BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.

LIGHT GAUGE STEEL STRAP

1. GALVANIZED MATERIAL
   A. ALL GALVANIZED 54 MIL OR HEARVIER MATERIALS SHALL BE FORMED STEEL WITH A MINIMUM YIELD OF 50,000 PSI. & ULTIMATE OF 65,000 PSI.

   B. ALL GALVANIZED 43 MIL AND LIGHTER MATERIALS SHALL BE FORMED STEEL WITH A MINIMUM YIELD OF 33,000 PSI. & ULTIMATE OF 45,000 PSI

   C. ALL GALVANIZED MATERIALS SHALL BE FORMED FROM STEEL HAVING A G-60 GALVANIZED COATING MEETING THE REQUIREMENTS OF ASTM A-525.
2. ALL LIGHT GAGE BASE MATERIAL SHALL HAVE THE MINIMUM THICKNESS AS INDICATED BELOW:

97 MIL – 0.0966"	33 MIL – 0.0329"
68 MIL – 0.0677"	27 MIL – 0.0269"
54 MIL – 0.0538"	18 MIL – 0.0179"
43 MIL – 0.0428"	

3. ALL WELDING RODS ARE TO CONFORM TO THE FOLLOWING:
   FOR WELDING 43 MIL AND LIGHTER MEMBERS – E60XX
   FOR WELDING 54 MIL AND HEAVIER MEMBERS – E70XX
   ALL WELDING TO BE PERFORMED BY CERTIFIED LIGHT GAGE WELDERS.
   ALL WELDS SHALL BE TOUCHED-UP WITH A ZINC-RICH PAINT FOR GALVANIZED MATERIALS OR SHALL BE COVERED WITH THE COMPATIBLE PAIN FOR PAINTED MEMBER.
4. GEOLOGIST OR GEOTECHNICAL ENGINEER OR OTHER QUALIFIED PROFESSIONAL SHALL DETERMINE IF CORROSIVE PROTECTION MATERIALS (GALVANIZED, OR EPOXY COATING) ARE NEEDED.

INSTALLATION INSTRUCTIONS

1. ALL TANKS MUST BE VISUALLY INSPECTED IN THE FIELD TO ENSURE NO DAMAGE HAS OCCURRED FROM SHIPPING AND HANDLING.
2. IN ADDITION TO THE MANUFACTURER'S INSTRUCTIONS, THE INSTALLATION MUST COMPLY WITH ALL APPLICABLE BUILDING CODES.
3. SHIP TANKS ON SUPPORT SADDLES PROVIDED.
4. PLACE SADDLES NEAR EACH END OF TANK, DISTRIBUTING WEIGHT EVENLY.
5. MOVE TANKS BY LIFTING, USING LIFTING LUGS PROVIDED. DO NOT REMOVE TANKS BY DRAGGING OR ROLLING OFF OF CARRIER. USE DOUBLE SLING WITH A MINIMUM OF 8" OF CABLE ON EACH SIDE FOR LIFTING. PLACE TANKS ON GROUND USING SADDLES PROVIDED, AND CHOCK BOTH SIDES OF TANK TO ENSURE IT WILL NOT ROLL IN WINDY CONDITIONS.
6. RECOMMENDED LIFTING EQUIPMENT:
   - EXCAVATION EQUIPMENT THAT IS CAPABLE OF PRODUCING A LEVEL BOTTOM HOLE AND CAN PLACE BACKFILL MATERIAL AT ALL POINTS OF THE EXCAVATION
   - CRANE AND OR LIFTING EQUIPMENT THAT IS CAPABLE OF LIFTING AND PLACING TANKS AND ANCHORING DEVICES
   - TAPE MEASURE
   - SPIRIT LEVEL OR TRANSIT
   - TAMPING ROD
   - HAND SHOVELS
   - 8' LIFTING CHAIN OR SLING WITH HOOK ENDS. LARGER TANKS REQUIRE USE OF SPREADER BAR
   - SOIL COMPACTING EQUIPMENT.
7. VISUAL INSPECTION:
   ALL TANKS SHALL BE VISUALLY INSPECTED OVER THE ENTIRE VESSEL, PAYING PARTICULAR ATTENTION TO LOCATION OF SHIPPING CRADLES AND STRAPPING.
   INSPECT FOR THE FOLLOWING DEFECTS:
   - VISIBLE FRACTURES IN THE WALL OR RIBS.
   - DELAMINATING.
   - SCRATCHES, ABRASIONS, OR GAUGES EXTENDING MORE THAN 1/16" INTO THE LAMINATE OF THE FIBERGLASS.
   - STRESS CRACKS (FINE SPIDER WEB LIKE CRACKS DEEP INTO THE STRUCTURE).
8. IF ANY DAMAGE IS PRESENT, THE TANK SHALL NOT BE INSTALLED UNTIL IT IS INSPECTED AND REPAIRED BY AN AUTHORIZED PERSON.
9. BACKFILL SPECIFICATIONS:
   THE CONTRACTOR, ENGINEER, ARCHITECT, OR OWNER SHALL DETERMINE IF A TRAFFIC-RATED INSTALLATION IS REQUIRED. EXCAVATION SIZE AND BACKFILL SPECIFICATIONS WILL DIFFER WHEN TANK IS INSTALLED TO MEET TRAFFIC RATING REQUIREMENTS, AS DETAILED ON SUBSEQUENT DRAWINGS.
   THE TANK MUST BE INSTALLED WITH SPECIFIED PRIMARY BACKFILL ONLY IN THE REGION IMMEDIATELY AROUND THE TANK. THE PRIMARY BACKFILL MUST EXTEND A MINIMUM OF 12 INCHES ON SIDES AND ENDS. PRIMARY BACKFILL UNDER THE TANK IS TO BE A MINIMUM OF 12 INCHES.
10. SPECIFIED BACKFILL MATERIALS:
    PEA GRAVEL:
    NATURALLY ROUNDED AGGREGATE WITH A PARTIAL SIZE OF NOT LESS THAN 1/8 INCH AND NOT GREATER THAN 3/4 INCH. GRAVEL MUST BE CLEAN AND FREE FLOWING, AND FREE FROM DEBRIS.
    CRUSHED STONE:
    CRUSHED STONE OR GRAVEL WITH PARTIAL SIZE NOT LESS THAN 1/8 INCH AND NOT GREATER THAN 1/2 INCH. AGGREGATE MUST BE CLEAN AND FREE FLOWING, AND FREE FROM DEBRIS.
11. SECONDARY BACKFILL SPECIFICATION:
    SECONDARY BACKFILL CAN ONLY BE USED AT THE ABOVE-SPECIFIED DISTANCE FROM THE TANK WALLS. SECONDARY BACKFILL CAN BE USED AT MORE THAN 18 INCHES ABOVE TANK.
    COURSE SAND OR GRAVEL:
    - COURSE SAND OR GRAVEL CONTAINING ROCKS NO LARGER THAN 1 1/2 INCHES.
    - BACKFILL SHALL BE CLEAN AND FREE FROM DEBRIS.
    - DURING PLACEMENT THIS BACKFILL MATERIAL MUST BE COMPACTED TO 95% RELATIVE COMPACTION. (AS MEASURED BY ASTM DI557 PROCEDURE.)

    SELECT NATIVE BACKFILL:
    - SELECT NATIVE BACKFILL CONTAINING ROCKS NO LARGER THAN 1 1/2 INCHES. THIS MATERIAL CAN BE USED OUTSIDE OF ABOVE NOTED DISTANCES FROM THE TANK.
    - DURING PLACEMENT THIS BACKFILL MATERIAL MUST BE COMPACTED TO 95% RELATIVE COMPACTION. (AS MEASURED BY ASTM DI557 PROCEDURE.)
12. ALL BACKFILL MATERIAL MUST BE FREE OF ICE AND SNOW AT TIME OF INSTALLATION, AND SHALL NOT CONTAIN LUMPS OR FROZEN MATERIAL AT ANY TIME DURING INSTALLATION.
13. USE OF BACKFILL AND BEDDING MATERIAL OTHER THAN THAT SPECIFIED ABOVE WITHOUT PRIOR WRITTEN APPROVAL WILL VOID TANK WARRANTY.
14. FILTER FABRIC LINER:
    IT IS GEOLOGIST, GEOTECHNICAL ENGINEER OR OTHER QUALIFIED PROFESSIONAL RESPONSIBILITY TO DETERMINE IF A FILTER FABRIC LINER IS REQUIRED. THE FILTER FABRIC PREVENTS THE MIXING OF PEA GRAVEL WITH NATIVE SOIL AND KEEPS THE BACKFILL STABLE.
15. BEDDING AND BACKFILL INSTRUCTIONS FOR WET HOLE INSTALLATION:
    PREPARE EXCAVATION ACCORDING TO REQUIRED SIZE AND DEPTH. LEVEL BOTTOM OF HOLE. INSTALL APPROPRIATE PUMPING EQUIPMENT AT SIDE OF EXCAVATION LOWER THAN INTENDED BOTTOM OF EXCAVATION. MAINTAIN WATER LEVEL AS LOW AS POSSIBLE. LEVEL BOTTOM OF HOLE USING PRIMARY BACKFILL MATERIAL.
16. PLACEMENT OF TANK ANCHORS:
    PLACE TANK ANCHORS INTO EXCAVATION AT DESIRED DISTANCE APPROPRIATE FOR TANK DIAMETER. USE SETS OF CONCRETE DEADMEN DEPENDING ON THE LENGTH OF TANK. ALWAYS PROVIDE SUFFICIENT CLEARANCE TO ALLOW THE DEADMEN ANCHOR POINT TO BE SET OUTSIDE OF THE TANK "SHADOW". SEE STRUCTURAL DRAWINGS FOR DETAILS.

REINFORCED CONCRETE

1. CEMENT TO BE TYPE V CONFORMING TO ASTM C-150.
2. AGGREGATES SHALL CONFORM TO ASTM C-33 FOR STRUCTURAL NORMAL-WEIGHT CONCRETE (1" MAXIMUM SIZE) AND ASTM C-330 FOR STRUCTURAL LIGHTWEIGHT CONCRETE.
3. READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C-94.
4. CONCRETE DESIGN MIXES SHALL BE IN ACCORDANCE WITH SECTION 1905 OF THE CALIFORNIA BUILDING CODE (CBC) OR APPROPRIATE LOCAL BUILDING CODES AND SHALL BE STAMPED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF JURISDICTION.
5. ALL CONCRETE SHALL SATISFY THE MINIMUM STRENGTH REQUIREMENTS. THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH (F'C) AT 28 DAYS SHALL BE AS FOLLOWS:
   - 2500 PSI SLABS ON GRADE
   - 2500 PSI CONCRETE BEAMS *

   USE fc'=4500 PSI, W/C=0.45, TYPE V CEMENT WHERE SULFATE IS SEVERE, CORROSIVE SOIL OCCURS. THE TYPE OF CEMENT USED SHOULD BE DETERMINED BY GEOTECHNICAL ENGINEER OR GEOLOGIST.
6. SUBMIT HISTORICAL TEST DATA FOR ALL MIX DESIGNS. TEST DATA SHALL MEET THE REQUIREMENTS OF SEC. 1905.3 OF THE CBC OR APPROPRIATE LOCAL BUILDING CODES WHEN HISTORICAL DATA IS NOT AVAILABLE. THE REQUIRED CONCRETE COMPRESSIVE STRENGTH SHALL BE INCREASED IN ACCORDANCE WITH TABLE 19-A-7. THE CONCRETE SUPPLIER MUST BEAR THE TOTAL RESPONSIBILITY THAT THE MIX DESIGNS WILL ATTAIN THE REQUIRED STRENGTH AND SHRINKAGE CHARACTERISTICS. ACCEPTANCE OF MIX DESIGN WILL BE BASED ONLY ON CONFORMANCE OF SPECIFIED DESIGN STRENGTH AND DESIGN SLUMP.
7. THE MINIMUM CEMENT CONTENT PER CUBIC YARD OF CONCRETE SHALL BE AS FOLLOWS:
   - 5 1/4 SACKS FOR 2500 PSI STRENGTH
   - 5 1/2 SACKS FOR 3000 PSI OR GREATER STRENGTH
   - WATER/CEMENT RATIO NOT TO EXCEED 0.45
8. THE MAXIMUM CONCRETE SLUMP SHALL BE 3" +/- 1" FOR SLABS ON GRADE AND 4" +/- 1" FOR ALL OTHER WORK.
9. THE USE OF FLY ASH SHALL BE CONSIDERED TO IMPROVE CONCRETE WORKABILITY AND DURABILITY ONLY. FLY ASH SHALL NOT BE CONSIDERED TO REDUCE THE MINIMUM CEMENT CONTENT. FLY ASH SHALL NOT BE USED IN POST-TENSIONED CONCRETE. FLY ASH SHALL CONFORM TO ASTM C-618, CLASS F. THE AMOUNT OF FLY ASH USED SHALL NOT EXCEED 15% OF THE CEMENT CONTENT.
10. ADMIXTURES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. ADMIXTURES USED TO INCREASE THE WORKABILITY OF THE CONCRETE SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. WHEN ADMIXTURES ARE UTILIZED, SUBMIT MANUFACTURER'S PRODUCT INFORMATION WITH THE CONCRETE MIX DESIGN. ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL NOT BE USED.
11. AIR ENTRAINMENT OF 4% SHALL BE PROVIDED FOR SLABS ON GRADE. AIR-ENTRAINING ADMIXTURES SHALL CONFORM TO ATM C-260.
12. PROJECTING CORNERS OF SLABS, BEAMS, WALLS, COLUMNS, ETC. SHALL BE FORMED WITH A 3/4" CHAMFER UNLESS OTHERWISE NOTED.
13. CONCRETE FORM TOLERANCES SHALL BE WITHIN THE STANDARDS SET FORTH IN ACI 117.
14. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS AND OTHER INSERTS SHALL BE SECURED IN POSITION AND INSPECTED BY THE LOCAL BUILDING DEPARTMENT INSPECTOR PRIOR TO THE POURING OF ANY CONCRETE.
15. THE LOCATION OF ALL CONSTRUCTION JOINTS, NOT SPECIFICALLY INDICATED ON THE DRAWINGS, SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACING REINFORCING STEEL.
16. REFER TO AND VERIFY WITH ARCHITECTURAL DRAWINGS ANY MOULDS, GROOVES, REVEALS, SCUPPERS, ORNAMENTS, CLIPS OR TEXTURES REQUIRED TO BE CAST INTO CONCRETE AND FOR LOCATION AND EXTENT OF DEPRESSIONS, CURBS, AND RAMPS.
17. PIPE MAY PASS THROUGH STRUCTURAL CONCRETE IN SLEEVES, BUT SHALL NOT BE EMBEDDED THEREIN. SLEEVES SHALL BE WRAPPED WITH EXPANSION JOINT FILLER MATERIAL TO ALLOW CONCRETE TO CURE WITHOUT RESTRAINT. PIPES OR CONDUITS EXCEEDING ONE-THIRD THE SLAB OR WALL THICKNESS SHALL NOT BE STRUCTURAL AND/OR ELECTRICAL DRAWINGS FOR LOCATION OF SLEEVES, ACCESSORIES, ETC.
18. CONCRETE FLOOR SLABS VARIATION FROM LEVEL TO BE NOT MORE THAN 1/8" IN TEN FEET.
19. DRY PACK: MIX, IN PROPORTIONS BY VOLUME, ONE PART CEMENT TO TWO-AND-ON-HALF PARTS FINE AGGREGATE. SCREENING OUT MATERIALS RETAINED ON NO. 4 SIEVE. MIX WITH WATER TO CONSISTENCY SUCH THAT, WHEN BALL OF MIXTURE IS COMPRESSED IN HAND, BALL WILL MAINTAIN SHAPE, SHOWING FINGER MARKS, BUT NOT SHOWING SURFACE WATER.

DIMENSIONS

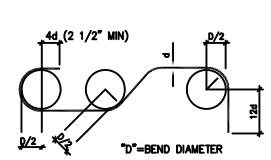
1. DIMENSIONS SHALL BE DEFINED TO INCLUDE BOTH HORIZONTAL DIMENSIONS AND VERTICAL DIMENSIONS (ELEVATIONS).
2. WRITTEN DIMENSIONS SHALL SUPERCEDE SCALED DRAWINGS.
3. SEE MANUFACTURE DRAWINGS FOR DIMENSIONS NOT NOTED ON STRUCTURAL DRAWINGS.

TIE DOWN (IF APPLICABLE)

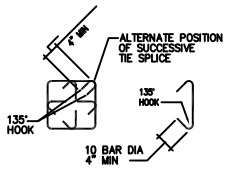
1. GEOLOGIST OR GEOTECHNICAL ENGINEER OR OTHER QUALIFIED PROFESSIONAL SHALL DETERMINE IF TIE DOWNS ARE REQUIRED AND IF CORROSIVE PROTECTION MATERIALS (GALVANIZED, STAINLESS STEEL OR EPOXY COATING) ARE NEEDED.
2. IF APPLICABLE, 2 STAINLESS STEEL (OR EQUIVALENT) STRAPS WILL BE USED, AS DETAILED ON SUBSEQUENT DRAWINGS.
3. AS WITH ANY ANCHOR, WATER-TABLE HEIGHT AND BURIAL DEPTH MUST BE CONSIDERED IN SIZING THE DEADMAN SYSTEM.
4. ALWAYS PROVIDE SUFFICIENT CLEARANCE TO ALLOW THE DEADMEN ANCHOR POINT TO BE SET OUTSIDE OF THE TANK "SHADOW".

REINFORCING STEEL

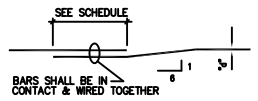
1. BAR REINFORCEMENT SHALL CONFORM WITH ASTM A615, GRADE 60 UNO.
2. ALL WELDED REBAR SHALL CONFORM WITH ASTM A706.
3. WELDING OF REINFORCING STEEL SHALL CONFORM WITH AWS D1.4.-92 OR LATEST EDITION.
4. WELDED WIRE FABRIC SHALL CONFORM WITH ASTM A185 GRADE 65 FOR PLAIN WIRE AND ASTM A497 GRADE 80 FOR DEFORMED WIRE. ALL MESH SHALL HAVE A MINIMUM SIDE AND END LAP OF 1 ½" MESH OR 9", WHICHEVER IS GREATER.
5. REINFORCING DETAILING, BENDING AND PLACING SHALL BE IN ACCORDANCE WITH CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE" LATEST EDITION.
6. LAPS AT BAR SPLICES SHALL BE PER LAP SPLICE DETAILS.
7. VERTICAL BARS IN WALLS SHALL BE ACCURATELY POSITIONED AT THE CENTER OF WALL. UNLESS OTHERWISE NOTED ON DETAILS, & SHALL BE TIED IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 192 BAR DIA.
8. BARS SHALL BE CLEAN OF MUD, OIL OR OTHER COATINGS LIKELY TO IMPAIR BONDING.
9. REINFORCING BARS SHALL NOT BE RE-BENT WITHOUT APPROVAL OF STRUCTURAL ENGINEER. BENDS SHALL BE MADE COLD.
10. UNLESS SHOWN OTHERWISE, REINFORCING BARS IN CONTINUOUS CONCRETE BEAMS AND SPANDRELS SHALL HAVE TOP BARS SPLICED AT THE MIDSPAN AND BOTTOM BARS SPLICED OVER THE SUPPORTS.
11. REINFORCING STEEL SHALL BE PROVIDED WITH THE FLOWING AMOUNTS OF CONCRETE CLEAR COVER, UNLESS NOTED OTHERWISE:
    FOOTINGS (CONCRETE DEPOSITED AGAINST EARTH).....3"
    CONCRETE SURFACE (FORMED) EXPOSED TO EARTH OR WEATHER....2"
    CONCRETE REINFORCING (INCLUDING COLUMN TIES.....1 1/2"
    BEAMS AND GIRDERS.....1 1/2"
    SLAB (#11 OR SMALLER).....3/4 " BOTTOM
    1" TOP
12. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE OR GROUT.
13. UNLESS OTHERWISE NOTED IN DETAILS, FURNISH #3 SPACER TIES AT APPROXIMATELY 2"-6" ON CENTER IN ALL BEAMS AND FOOTINGS TO SECURE REINFORCING IN PLACE.



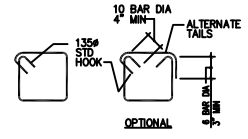
HOOKS & BENDS



COLUMN TIE TYPES



LAP SPLICE



BEAM STIRRUPS

NOTE: FOR SIZE AND SPACING OF ALL TIES AND STIRRUPS REFER TO FOOTING SCHEDULE AND/OR DETAILS.

BEND DIAMETER SCHEDULE	
BAR SIZE	BEND DIAMETER
#3 THRU #5	D = 4d
#6 THRU #8	D = 6d
#9 THRU #11	D = 8d
#14 THRU #18	D = 10d

3000 PSI MIN. CONCRETE / REINFORCING BAR LAP SPLICE				CONCRETE BLOCK
BAR #	MINIMUM CLEAR BAR SPACING (BAR DIAMETER)	LAP SPLICE LENGTH (INCHES)		BAR LAP IN INCHES
		* TOP BARS	OTHER BARS	
#4	MORE THAN 2	30	23	24"
#5	MORE THAN 2	37	29	30"
#6	MORE THAN 2	44	34	54"
#7	MORE THAN 2	81	62	63"
#8	MORE THAN 2	93	72	72"
#9	MORE THAN 2	104	80	82"
#10	MORE THAN 2	116	89	92"
#11	MORE THAN 2	127	98	102"

*HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE

STRUCTURAL GENERAL NOTES

MicroSepTec

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REGISTERED PROFESSIONAL ENGINEER GIANG XTAO NO. S. 5289 EXP. 6/30/12 STRUCTURAL STATE OF CALIFORNIA

AQX PREPARES THIS SET OF PLANS FOR THE STRUCTURAL ELEMENTS OF THE CONCRETE SLAB AND CONCRETE ANCHOR BEAM. SEE MANUFACTURE SPECIFICATIONS FOR PROPERTIES AND STRENGTHS OF THE SEPTIC TANK AND ASSOCIATED PARTS.

DRAWN BY: EQW JOB NO. 2010-801 DATE: MARCH 15, 2010
REVIEWED BY: RWM

REVISION:

REVISION:	DATE: / BY:	DESCRIPTION:

SITE INFORMATION:

ES 12
SEPTIC TANK DESIGN

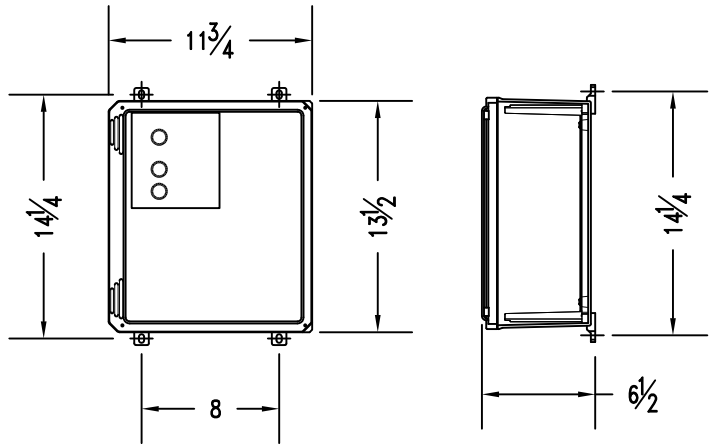
SHEET TITLE:

GENERAL NOTES

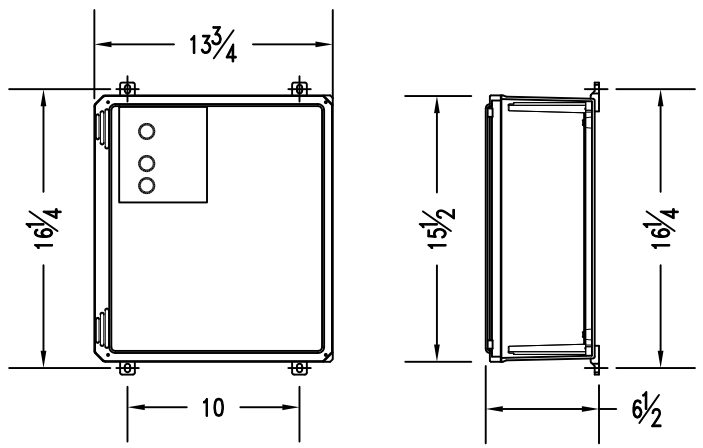
SHEET NUMBER:

IN12-01

STANDARD CONTROLLER
(NO PUMP/REMOTE PUMP RELAYS)

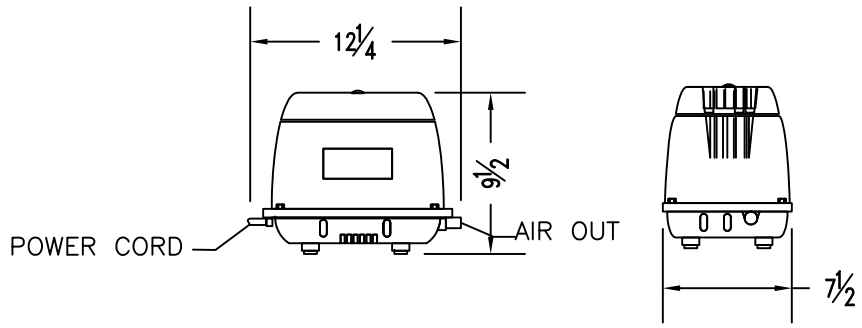


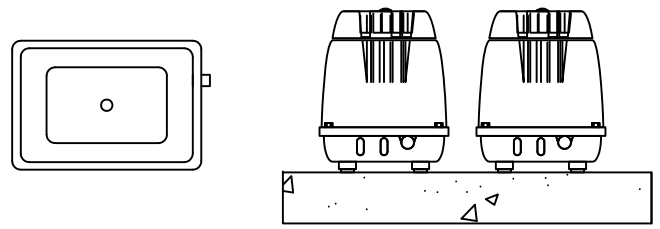
LARGE CONTROLLER
(INTERNAL PUMP RELAYS)



CONTROLLER DETAILS | SCALE 1:5 | 1

AIR COMPRESSOR





1. COMPRESSORS SHOULD BE LOCATED IN A WELL–VENTILATED SHADY PLACE.
   AN INDOOR LOCATION LIKE A SHED OR GARAGE IS IDEAL.
2. COMPRESSORS MUST BE ELEVATED OFF THE GROUND SO THAT SURFACE WATER CANNOT ENTER THE ELECTRICAL TERMINALS WITHIN THE COMPRESSOR.
3. COMPRESSORS SHOULD BE LOCATED AS CLOSE TO THE TANK AS POSSIBLE. DO NOT EXCEED 50' DISTANCE FROM TANK.
4. 1" SCH 80 PVC PIPE IS REQUIRED FOR PLUMBING THE COMPRESSOR(S) TO THE MIDDLE RISER; ONE PIPE PER COMPRESSOR.
5. THE PIPE MUST FALL TOWARD THE TANK WITH NO LOW POINTS.
6. COMPRESSORS MUST BE LOCATED AT THE SAME ELEVATION OR HIGHER THAN THE LID OF THE MIDDLE RISER.

COMPRESSORS | SCALE 1:5 | 2

MicroSepTec

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REGISTERED PROFESSIONAL ENGINEER QIANG XIAO NO. S. 5289 EXP. 6/30/12 STRUCTURAL STATE OF CALIFORNIA

AQX PREPARES THIS SET OF PLANS FOR THE STRUCTURAL ELEMENTS OF THE CONCRETE SLAB AND CONCRETE ANCHOR BEAM. SEE MANUFACTURE SPECIFICATIONS FOR PROPERTIES AND STRENGTHS OF THE SEPTIC TANK AND ASSOCIATED PARTS.

DRAWN BY: EQW JOB NO. 2010-001 DATE: MARCH 15, 2010
REVIEWED BY: RWW

REVISION:

REVISION:	DATE: / BY:	DESCRIPTION:

SITE INFORMATION:

ES 12
SEPTIC TANK DESIGN

SHEET TITLE:

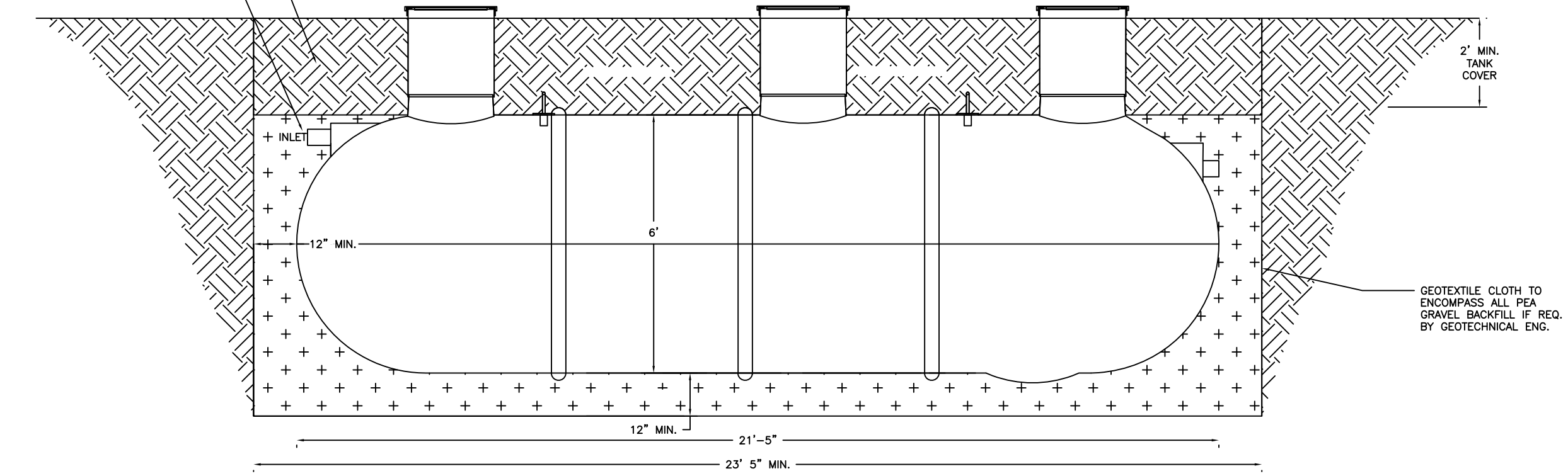
CONTROLLER & COMPRESSOR DETAILS

SHEET NUMBER:

IN12-02

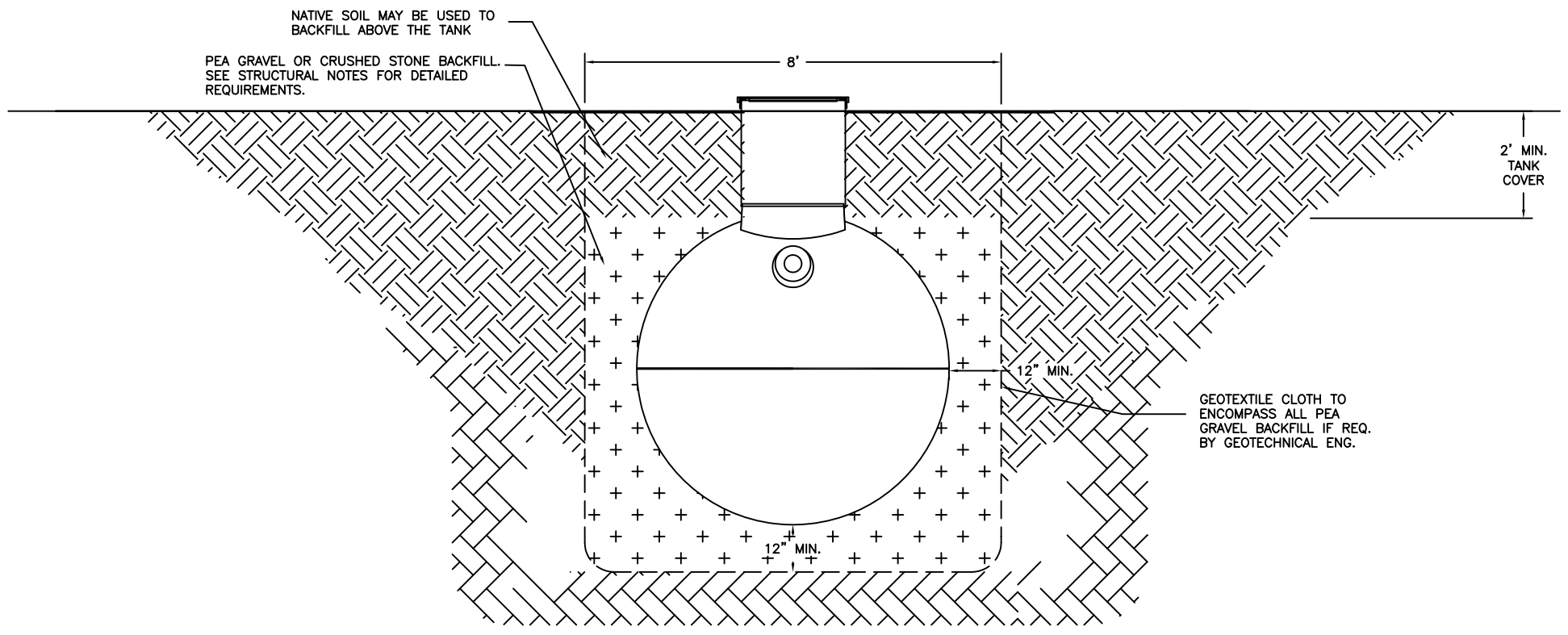
NOTE:

1. THE DESIGNED TANK BURY DEPTH IS 2' TO 6'. ANY TANK BURIED BEYOND THAT RANGE NEEDS TO BE ANALYZED BY A CIVIL/GEOTECHNICAL ENGINEER.
2. GEOLOGIST OR GEOTECHNICAL ENG. SHOULD DETERMINE IF CORROSIVE RESISTANT ANCHORS AND TEXTILE FILTER ARE REQUIRED SEE SHEET IN12-01.



TANK INSTALLATION LAYOUT (ELEVATION VIEW)

SCALE 1:16 — 1



TANK INSTALLATION LAYOUT (TRANSVERSE VIEW)

SCALE 1:16 — 2

MicroSepTec

Structural Engineer:

AQX ENGINEERING INC.

1520 BROOKHOLLOW, SUITE 45
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WWW.AQXENGINEERING.COM

REGISTERED PROFESSIONAL ENGINEER — QIANG XIAO — NO. S. 5289 EXP. 6/30/12 — STRUCTURAL — STATE OF CALIFORNIA

AQX PREPARES THIS SET OF PLANS FOR THE STRUCTURAL ELEMENTS OF THE CONCRETE SLAB AND CONCRETE ANCHOR BEAM, SEE MANUFACTURE SPECIFICATIONS FOR PROPERTIES AND STRENGTHS OF THE SEPTIC TANK AND ASSOCIATED PARTS.

DRAWN BY: EQW JOB NO. 2010-801 DATE: MARCH 15, 2010
REVIEWED BY: RWM

REVISION:

REVISION:	DATE: / BY:	DESCRIPTION:

SITE INFORMATION:

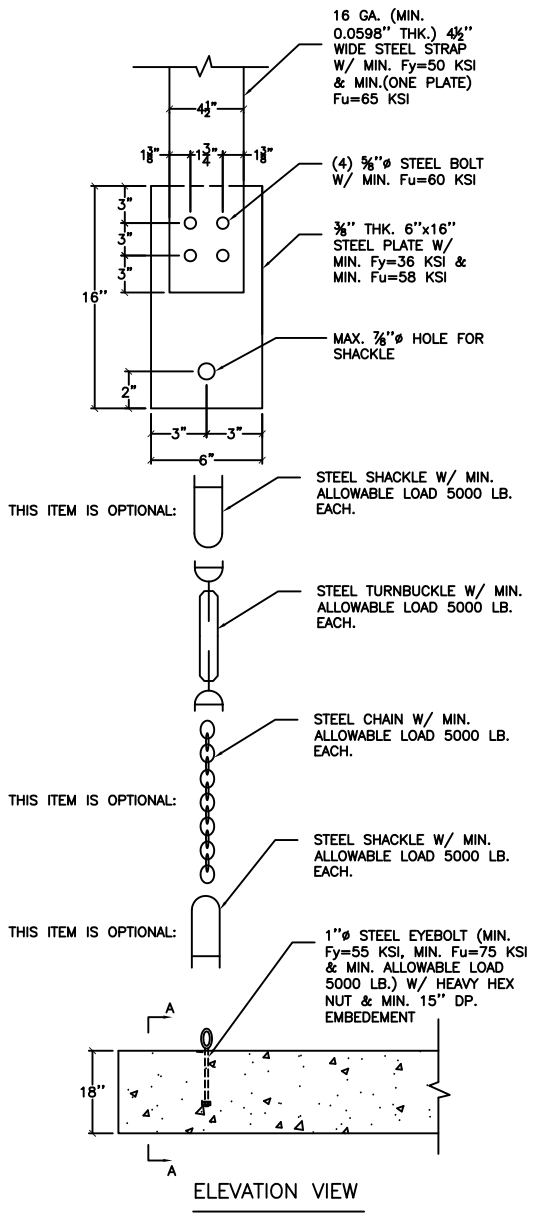
ES 12
SEPTIC TANK DESIGN

SHEET TITLE:

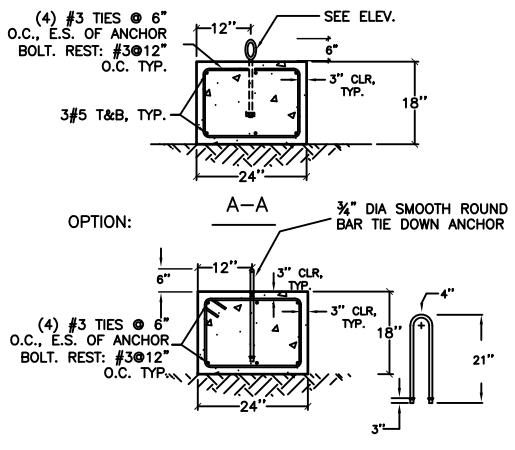
INSTALLATION DRAWING
NON TRAFFIC

SHEET NUMBER:

IN12-03



ELEVATION VIEW

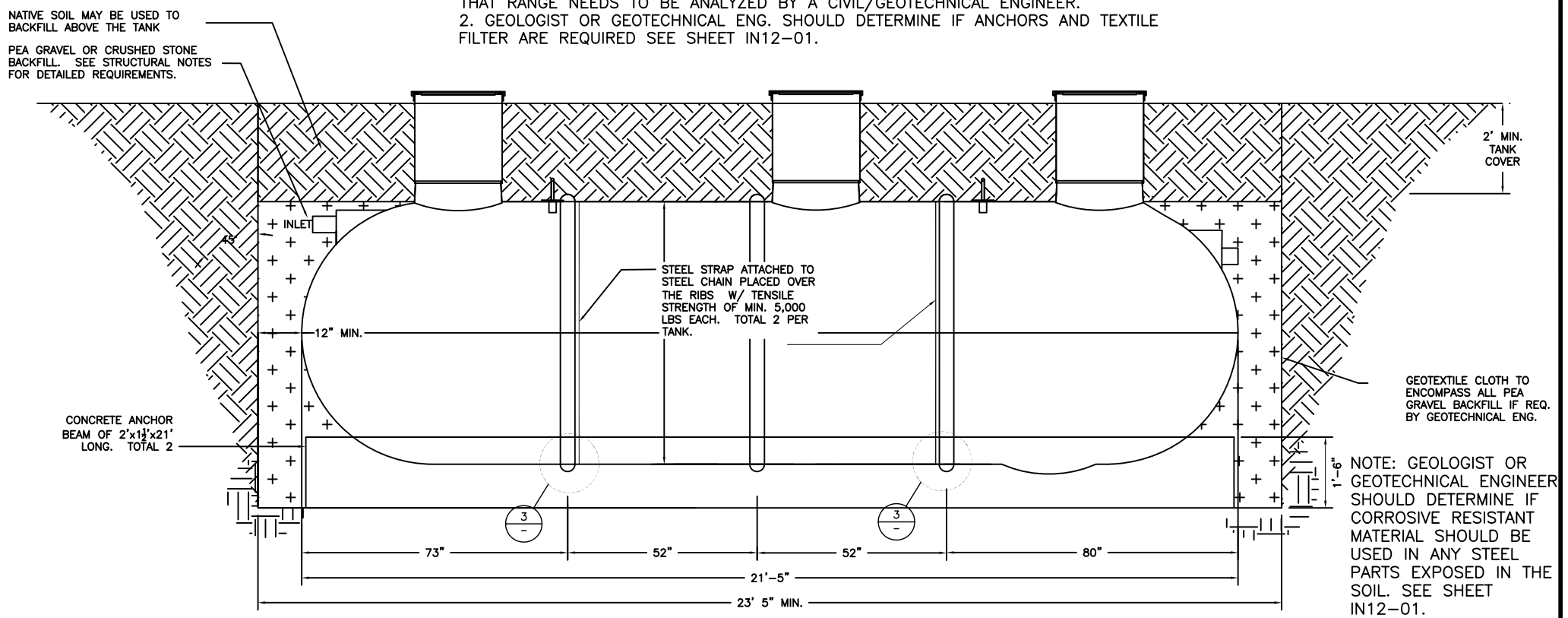


NOTE: GEOLOGIST OR GEOTECHNICAL ENGINEER SHOULD DETERMINE IF CORROSIVE RESISTANT MATERIAL SHOULD BE USED IN ANY STEEL PARTS EXPOSED IN THE SOIL. SEE SHEET IN12–01.

ANCHOR DETAIL | SCALE NTS | 3

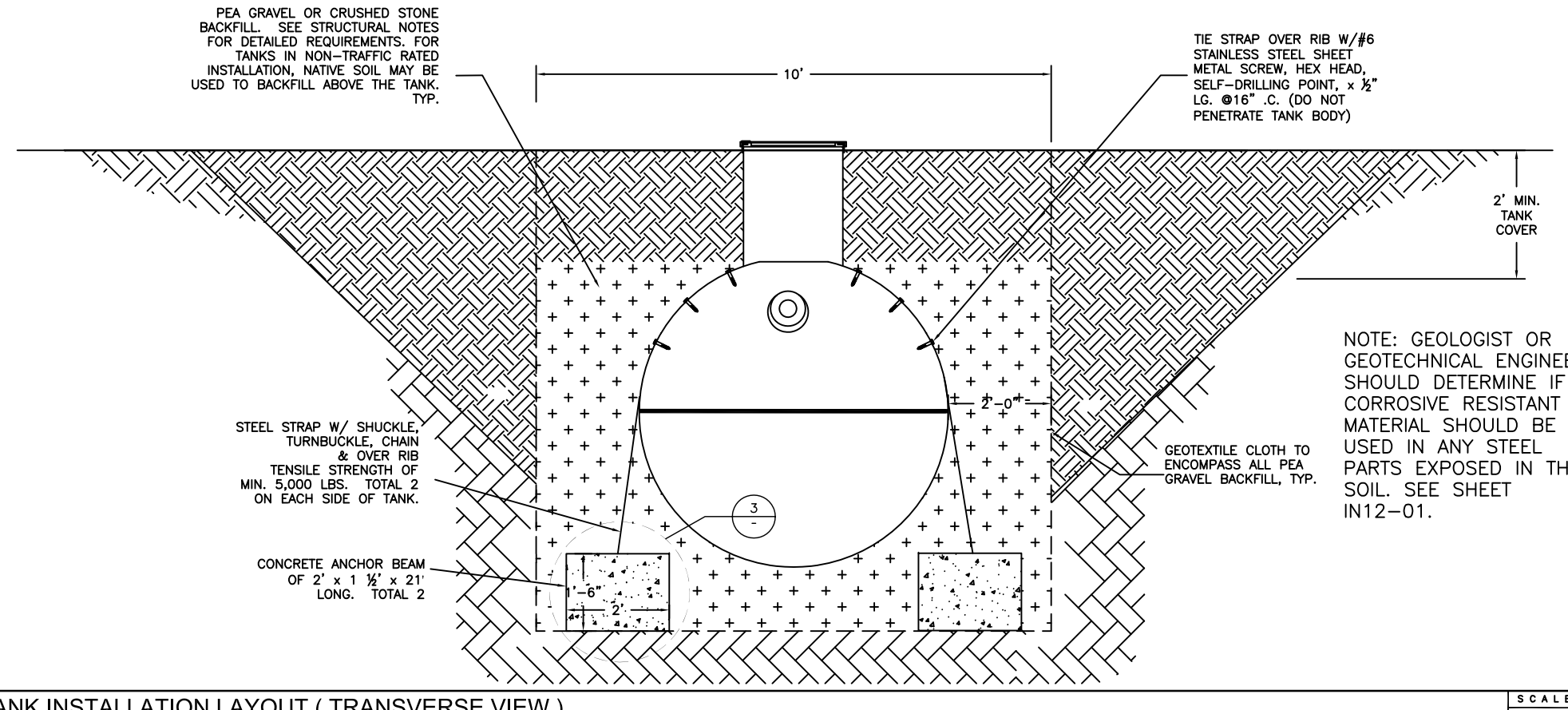
NOTE:

1. THE DESIGNED TANK BURY DEPTH IS 2' TO 6'. ANY TANK BURIED BEYOND THAT RANGE NEEDS TO BE ANALYZED BY A CIVIL/GEOTECHNICAL ENGINEER.
2. GEOLOGIST OR GEOTECHNICAL ENG. SHOULD DETERMINE IF ANCHORS AND TEXTILE FILTER ARE REQUIRED SEE SHEET IN12–01.



NOTE: GEOLOGIST OR GEOTECHNICAL ENGINEER SHOULD DETERMINE IF CORROSIVE RESISTANT MATERIAL SHOULD BE USED IN ANY STEEL PARTS EXPOSED IN THE SOIL. SEE SHEET IN12–01.

TANK INSTALLATION LAYOUT (ELEVATION VIEW) | SCALE NTS | 1



NOTE: GEOLOGIST OR GEOTECHNICAL ENGINEER SHOULD DETERMINE IF CORROSIVE RESISTANT MATERIAL SHOULD BE USED IN ANY STEEL PARTS EXPOSED IN THE SOIL. SEE SHEET IN12–01.

TANK INSTALLATION LAYOUT (TRANSVERSE VIEW) | SCALE 1:16 | 2

MicroSepTec

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REGISTERED PROFESSIONAL ENGINEER QIANG XIAO NO. S. 5289 EXP. 6/30/12 STRUCTURAL STATE OF CALIFORNIA

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DRAWN BY: EQW JOB NO. 2010–801 DATE: MARCH 15, 2010
REVIEWED BY: RWM

REVISION:

REVISION:	DATE: / BY:	DESCRIPTION:

SITE INFORMATION:

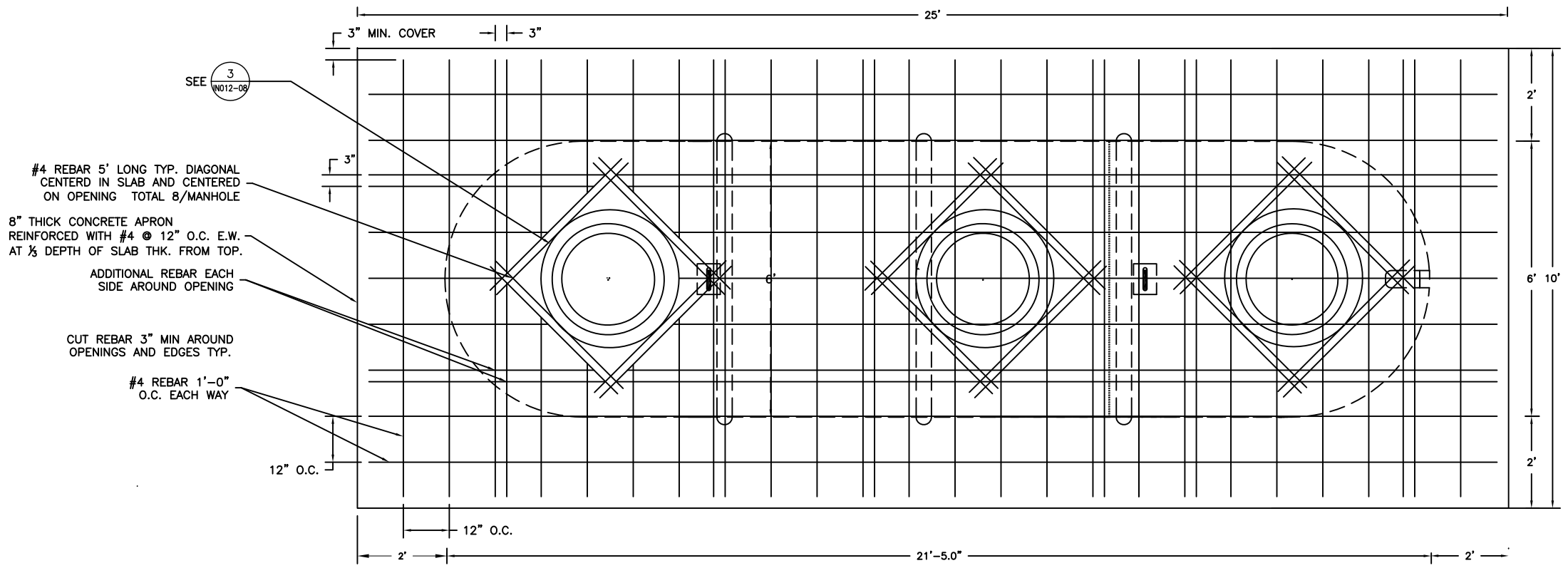
ES 12
SEPTIC TANK DESIGN

SHEET TITLE:

INSTALLATION DRAWING
NON TRAFFIC W ANCHORS

SHEET NUMBER:

IN12-04

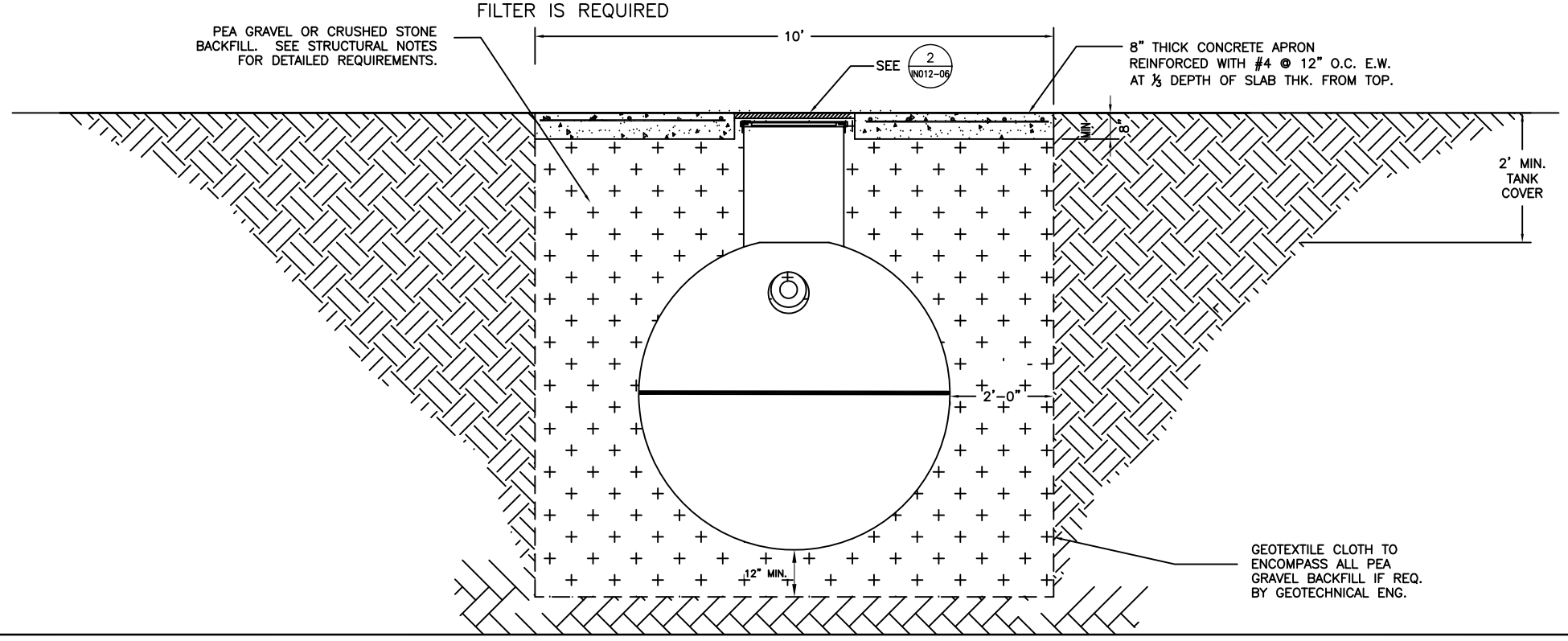


NOTE:
1. CONTROL JOINTS ARE DETERMINED BY GENERAL CONTRATOR.

TANK INSTALLATION LAYOUT (PLAN VIEW)

SCALE 1:16 — 1

NOTE:
1. THE DESIGNED TANK BURY DEPTH IS 2' TO 6'. ANY TANK BURIED BEYOND THAT RANGE NEEDS TO BE ANALYZED BY A CIVIL/GEOTECHNICAL ENGINEER.
2. GEOLOGIST OR GEOTECHNICAL ENG. TO DETERMINE IF ANCHORS AND TEXTILE FILTER IS REQUIRED



TANK INSTALLATION LAYOUT (TRANSVERSE VIEW)

SCALE 1:16 — 2

MicroSepTec

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REGISTERED PROFESSIONAL ENGINEER — QIANG XIAO — NO. S. 5289 EXP. 6/30/12 — STRUCTURAL — STATE OF CALIFORNIA

AQX PREPARES THIS SET OF PLANS FOR THE STRUCTURAL ELEMENTS OF THE CONCRETE SLAB AND CONCRETE ANCHOR BEAM. SEE MANUFACTURE SPECIFICATIONS FOR PROPERTIES AND STRENGTHS OF THE SEPTIC TANK AND ASSOCIATED PARTS.

DRAWN BY: EQW JOB NO. 2010-801 DATE: MARCH 15, 2010
REVIEWED BY: RWM

REVISION:

REVISION:	DATE: / BY:	DESCRIPTION:

SITE INFORMATION:

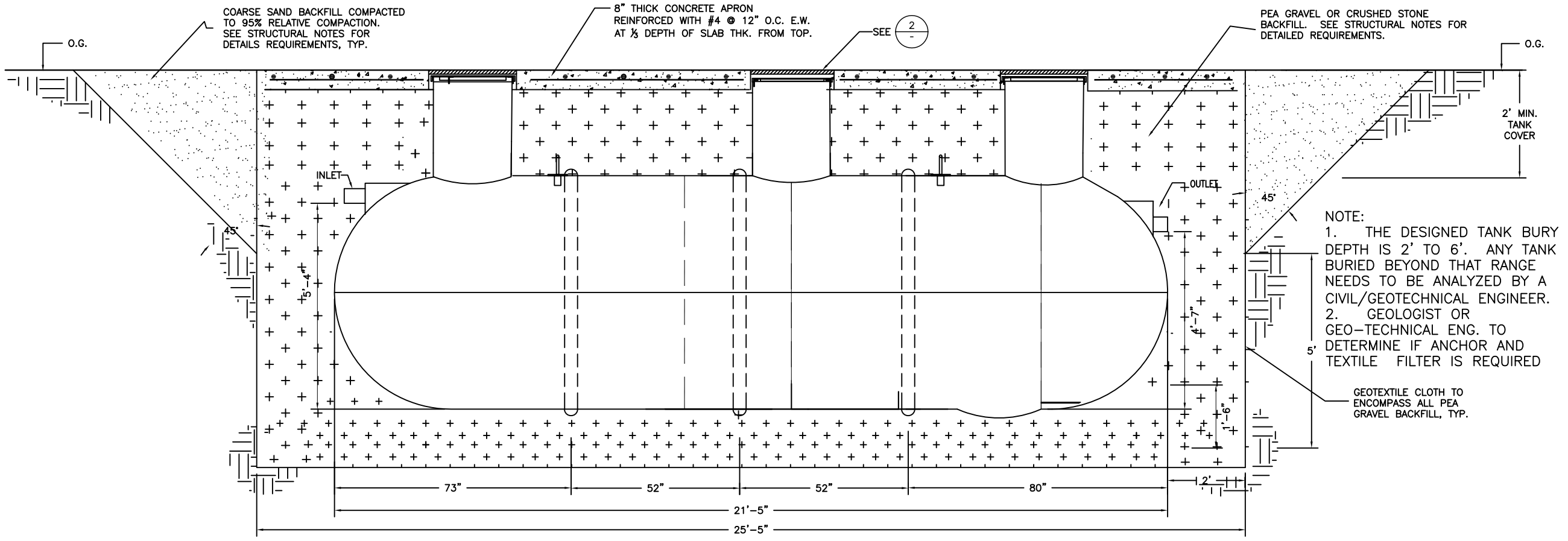
ES 12
SEPTIC TANK DESIGN

SHEET TITLE:

INSTALLATION DRAWING SLAB ONLY

SHEET NUMBER:

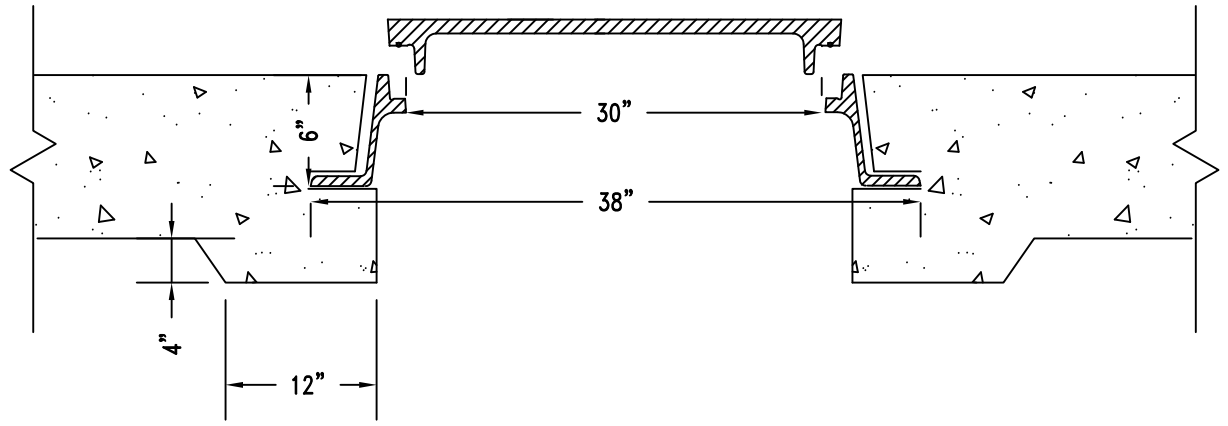
IN12-05



TANK INSTALLATION LAYOUT (ELEVATION VIEW)

SCALE 1:16 — 1

30" GAS TIGHT MANHOLE. CAST IRON FRAME AND COVER. H-20-RATED ALHAMBRA FOUNDRY A-1252B OR EQUAL



MANHOLE BASE & COVER

SCALE NTS — 2

MicroSepTec

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REGISTERED PROFESSIONAL ENGINEER QIANG XIAO NO. S. 5289 EXP. 6/30/12 STRUCTURAL STATE OF CALIFORNIA

AQX PREPARES THIS SET OF PLANS FOR THE STRUCTURAL ELEMENTS OF THE CONCRETE SLAB AND CONCRETE ANCHOR BEAM. SEE MANUFACTURE SPECIFICATIONS FOR PROPERTIES AND STRENGTHS OF THE SEPTIC TANK AND ASSOCIATED PARTS.

DRAWN BY: EQW JOB NO. 2010-801 DATE: MARCH 15, 2010
REVIEWED BY: RWM

REVISION:

REVISION:	DATE: / BY:	DESCRIPTION:

SITE INFORMATION:

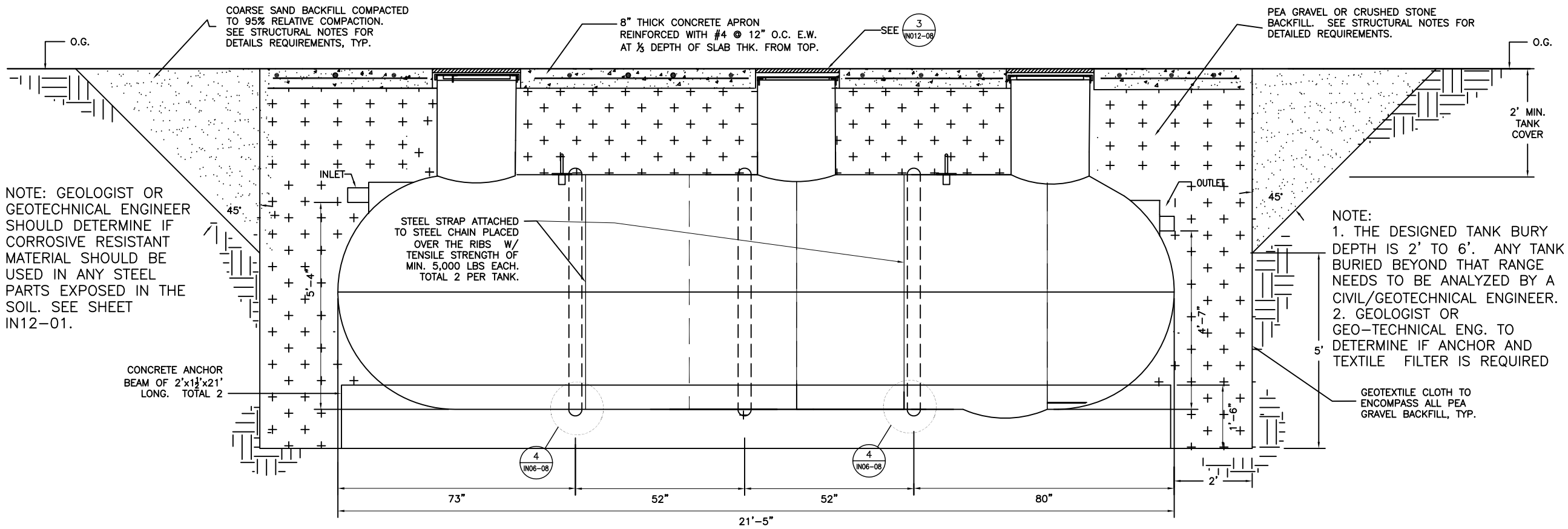
ES 12
SEPTIC TANK DESIGN

SHEET TITLE:

INSTALLATION DRAWING SLAB AND ANCHORS (I)

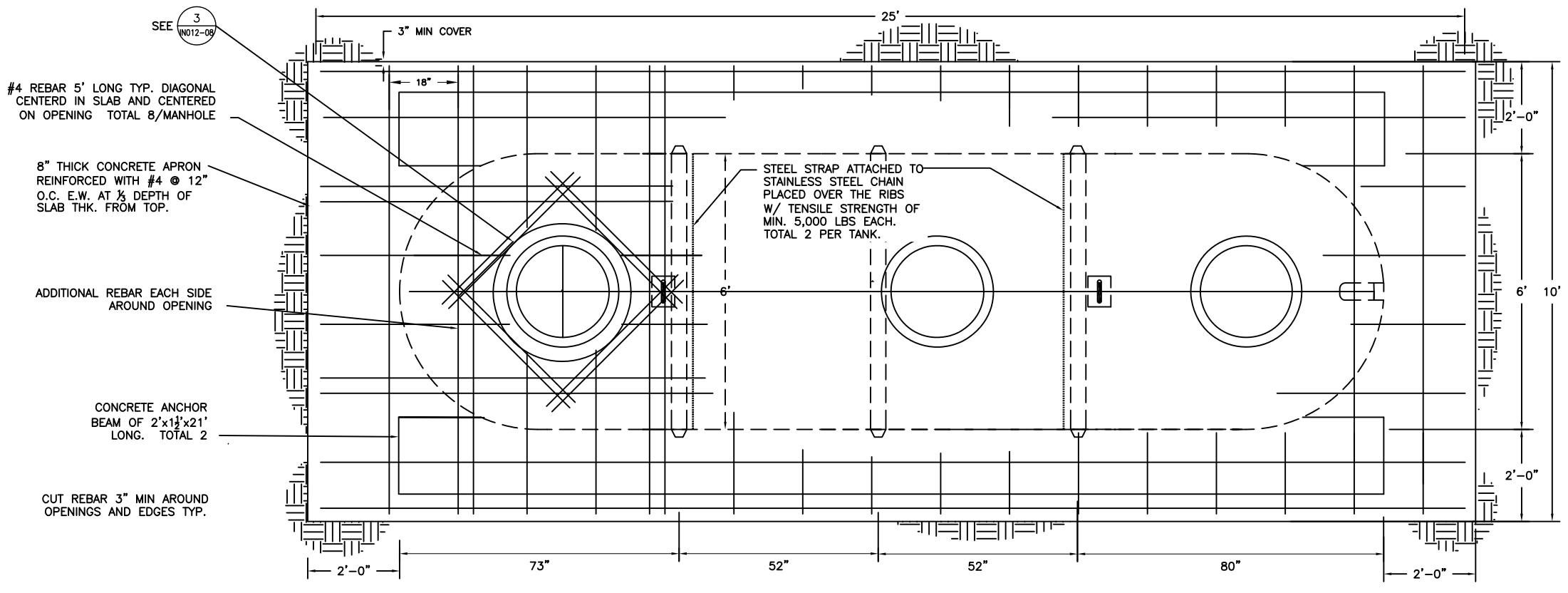
SHEET NUMBER:

IN12-06



TANK INSTALLATION LAYOUT (ELEVATION VIEW)

SCALE 1:16 — 1



TANK INSTALLATION LAYOUT (PLAN VIEW)

SCALE 1:16 — 2

MicroSepTec

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REGISTERED PROFESSIONAL ENGINEER — QIANG XIAO — NO. S. 5289 EXP. 6/30/12 — STRUCTURAL — STATE OF CALIFORNIA

AQX PREPARES THIS SET OF PLANS FOR THE STRUCTURAL ELEMENTS OF THE CONCRETE SLAB AND CONCRETE ANCHOR BEAM. SEE MANUFACTURE SPECIFICATIONS FOR PROPERTIES AND STRENGTHS OF THE SEPTIC TANK AND ASSOCIATED PARTS.

DRAWN BY: EQW JOB NO. 2010-801 DATE: MARCH 15, 2010
REVIEWED BY: RWM

REVISION:

REVISION:	DATE: / BY:	DESCRIPTION:

SITE INFORMATION:

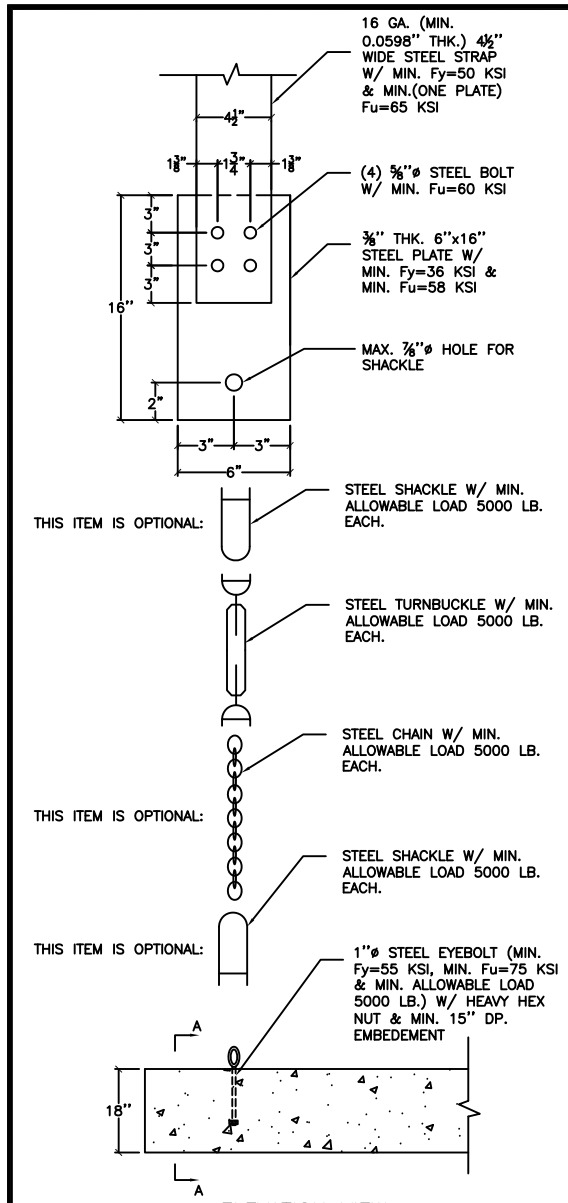
ES 12
SEPTIC TANK DESIGN

SHEET TITLE:

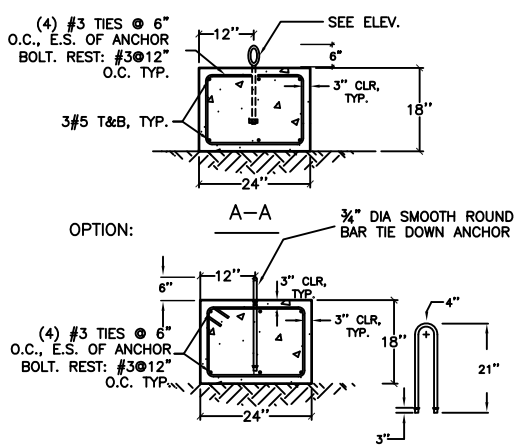
INSTALLATION DRAWING SLAB AND ANCHORS (I)

SHEET NUMBER:

IN12-07



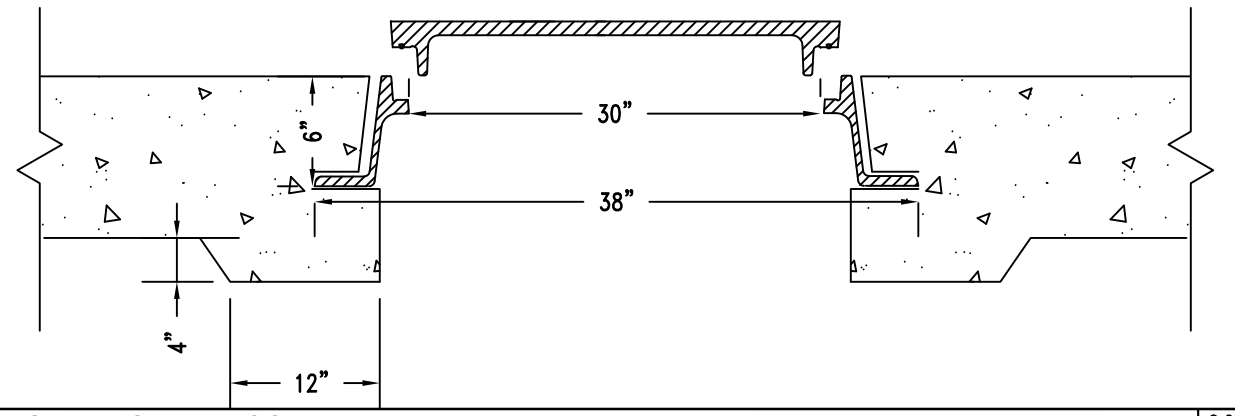
ELEVATION VIEW



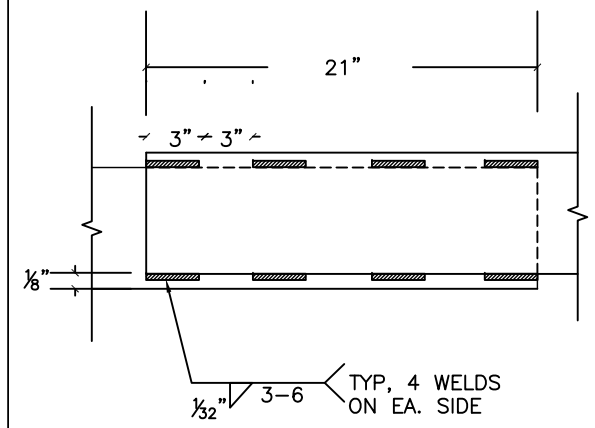
NOTE: GEOLOGIST OR GEOTECHNICAL ENGINEER SHOULD DETERMINE IF CORROSIVE RESISTANT MATERIAL SHOULD BE USED IN ANY STEEL PARTS EXPOSED IN THE SOIL. SEE SHEET IN12–01.

ANCHOR DETAIL | SCALE NTS | 4

30" GAS TIGHT MANHOLE. CAST IRON FRAME AND COVER. H–20–RATED ALHAMBRA FOUNDRY A–1252B OR EQUAL

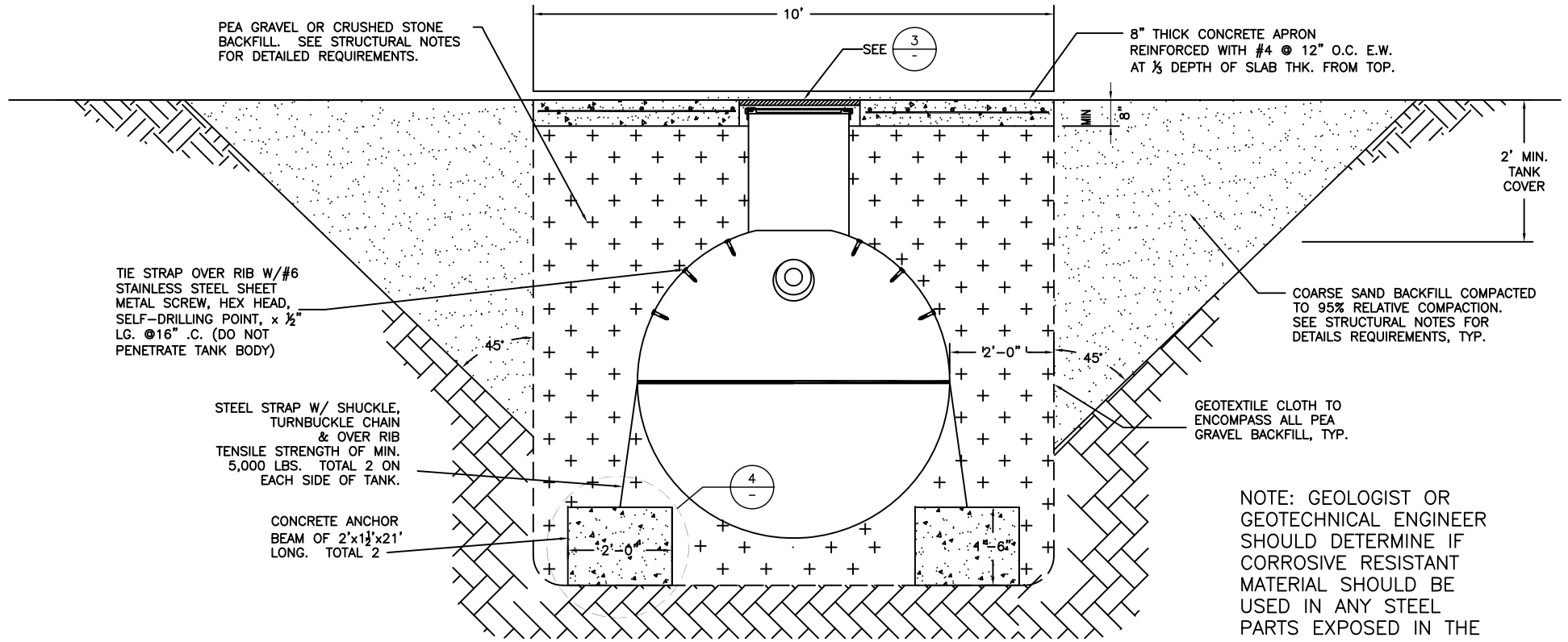


MANHOLE BASE AND COVER | SCALE NONE | 3



SPLICE DETAIL | SCALE NONE

NOTE:
1. THE DESIGNED TANK BURY DEPTH IS 2' TO 6'. ANY TANK BURIED BEYOND THAT RANGE NEEDS TO BE ANALYZED BY A CIVIL/GEOTECHNICAL ENGINEER.
2. GEOLOGIST OR GEO–TECHNICAL ENG. TO DETERMINE IF ANCHOR AND TEXTILE FILTER IS REQUIRED



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TANK INSTALLATION LAYOUT (TRANSVERSE VIEW) | SCALE 1:16 | 1

MicroSepTec

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REGISTERED PROFESSIONAL ENGINEER — QIANG XIAO — NO. S. 5289 — EXP. 6/30/12 — STRUCTURAL — STATE OF CALIFORNIA

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DRAWN BY: EQW JOB NO. 2010–001 DATE: MARCH 15, 2010
REVIEWED BY: RWM

REVISION:

REVISION:	DATE: / BY:	DESCRIPTION:

SITE INFORMATION:

ES 12
SEPTIC TANK DESIGN

SHEET TITLE:

INSTALLATION DRAWING SLAB AND ANCHORS (II)

SHEET NUMBER:

IN12-08