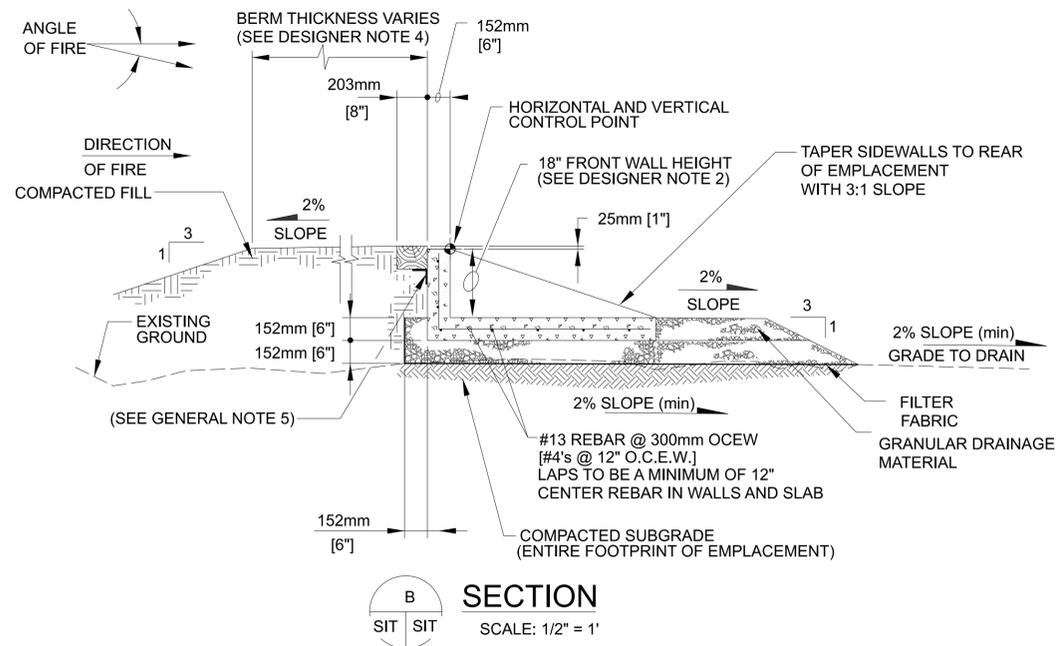


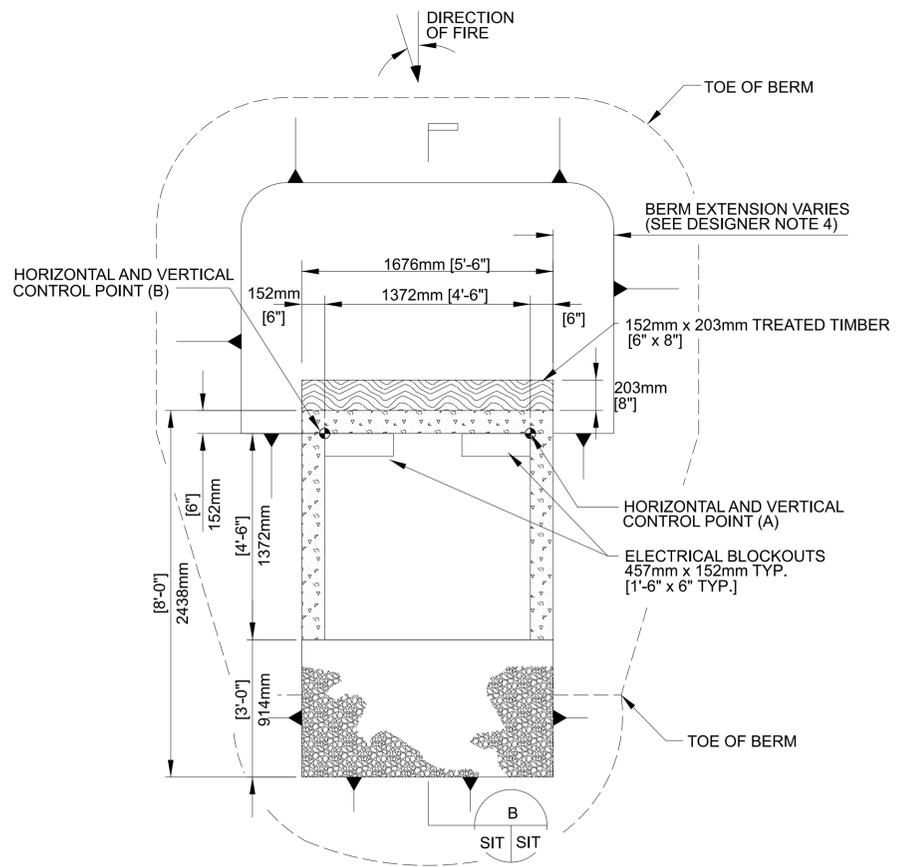


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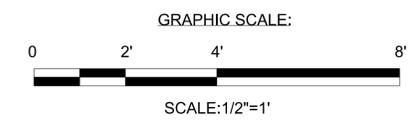
- GENERAL NOTES:
1. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 28MPa (4000psi) IN 28 DAYS.
  2. EMBLEMMENTS SHALL BE CONSTRUCTED OF REINFORCED CONCRETE. CONCRETE STRUCTURES SHALL BE PRECAST OR CAST-IN-PLACE. PRECAST STRUCTURE WILL HAVE LIFTING EYES CUT FLUSH.
  3. ALL REINFORCING STEEL SHALL BE PER ASTM A615, GRADE 60.
  4. AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED OR RESURFACED CONSISTENT WITH THE NATURAL SURROUNDINGS. GROUND COVER SHALL NOT REDUCE TARGET VISIBILITY.
  5. PLACE TREATED TIMBERS AGAINST CONCRETE WALL ON L102mm x 102MM x 12.7mm x 102mm [4"x4"x1/2"x 4"] STEEL ANGLES SPACED A MAXIMUM OF 914mm [3'] ON CENTER. ATTACH ANGLE TO CONCRETE WITH CONCRETE ANCHORS.
  6. ALL DIMENSIONS ARE INDICATED AS FOLLOWS: METRIC UNITS [ENGLISH] FOR INSTANCE, 1372mm [4'-6"]
  7. HORIZONTAL CONTROL POINT (A) IS LOCATED ON THE LEFT SIDE OF TARGET AS VIEWED FROM THE FIRING POSITION.
  8. PROVIDE 13mm [1/2"] CHAMFER ON ALL EXPOSED CONCRETE SURFACES.
  9. LABEL EACH EMBLEMMENT, COORDINATE WITH RANGE CONTROL FOR NUMBERING SCHEME.

NOTE:  
THIS EMBLEMMENT DETAIL ALSO APPLIES FOR BATTLE POSITION SENSORS, BATTLE EFFECTS SIMULATORS, MORTAR SIMULATION DEVICES, SOUND EFFECTS SIMULATORS, AND EMBLEMMENTS WITH DOUBLE TARGET ARM LIFTERS.



PLAN  
SURFACE / FILL EMBLEMMENT  
SCALE: 1/2" = 1'

- DESIGNER NOTES:
1. REFER TO THE STATIONARY INFANTRY TARGETS WRITE-UP IN THE RDG FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
  2. THE MINIMUM FRONT WALL HEIGHT OF 460MM (18") PROVIDES FULL PROTECTION FOR THE TARGETRY AND ELECTRICAL EQUIPMENT FOR AN ANGLE OF FIRE OF +/- 2 DEGREES AND HIDES THE TARGET LIFTER INCLUDING THE TARGET ARMS UP TO A 10 DEGREE DOWN ANGLE OF FIRE. COORDINATE WITH THE INSTALLATION AND THE RTLP-MCX FOR GREATER ANGLES OF FIRE.
  3. RETAINING WALLS MUST BE CONSTRUCTED OUT OF ADEQUATELY CONNECTED TREATED TIMBERS WITH FILTER FABRIC EXTENDING THE FULL HEIGHT OF WALL DESIGNED BASED ON LOCAL CONDITIONS
  4. REFER TO THE TARGET EMBLEMMENT PROTECTION SECTION OF THE RDG FOR THE REQUIRED BERM THICKNESS AND BERM EXTENSION REQUIREMENTS. BERM EXTENSIONS OF 1/4 OF THE BERM THICKNESS PROVIDE FULL PROTECTION FOR DIRECTIONS OF FIRE OF UP TO +/- 20 DEGREES AND ADEQUATE PROTECTION UP TO +/- 30 DEGREES.
  5. THE DESIGN MUST INCLUDE POSITIVE DRAINAGE AWAY FROM THE TARGET, INCLUDING BELOW GRADE EMBLEMMENTS
  6. THE 3:1 BERM SLOPES SHOWN ARE TYPICAL; ADJUST BASED ON A SITE-SPECIFIC GEOTECHNICAL REPORT.
  7. THE SIT ELECTRICAL EQUIPMENT AND TARGET LIFTER/SILHOUETTE REQUIRES A MINIMUM OF 2290MM (7'-6") CLEAR SPACE BEHIND THE FRONT WALL FOR TARGET MOVEMENT/LAYDOWN.



STATIONARY INFANTRY TARGET EMBLEMMENT



MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
DRAWN BY:	SOLICITATION NO.:
CHECKED BY:	CONTRACT NO.:
SUBMITTED BY:	PROJECT NUMBER:
SIZE:	

U.S. ARMY CORPS OF ENGINEERS  
ENGINEERING & SUPPORT CENTER  
HUNTSVILLE, ALABAMA

MAY 2022

RANGE AND TRAINING LAND PROGRAM  
STANDARD DESIGN MANUAL

STATIONARY INFANTRY  
TARGET EMBLEMMENTS

SHEET ID  
**SIT**

























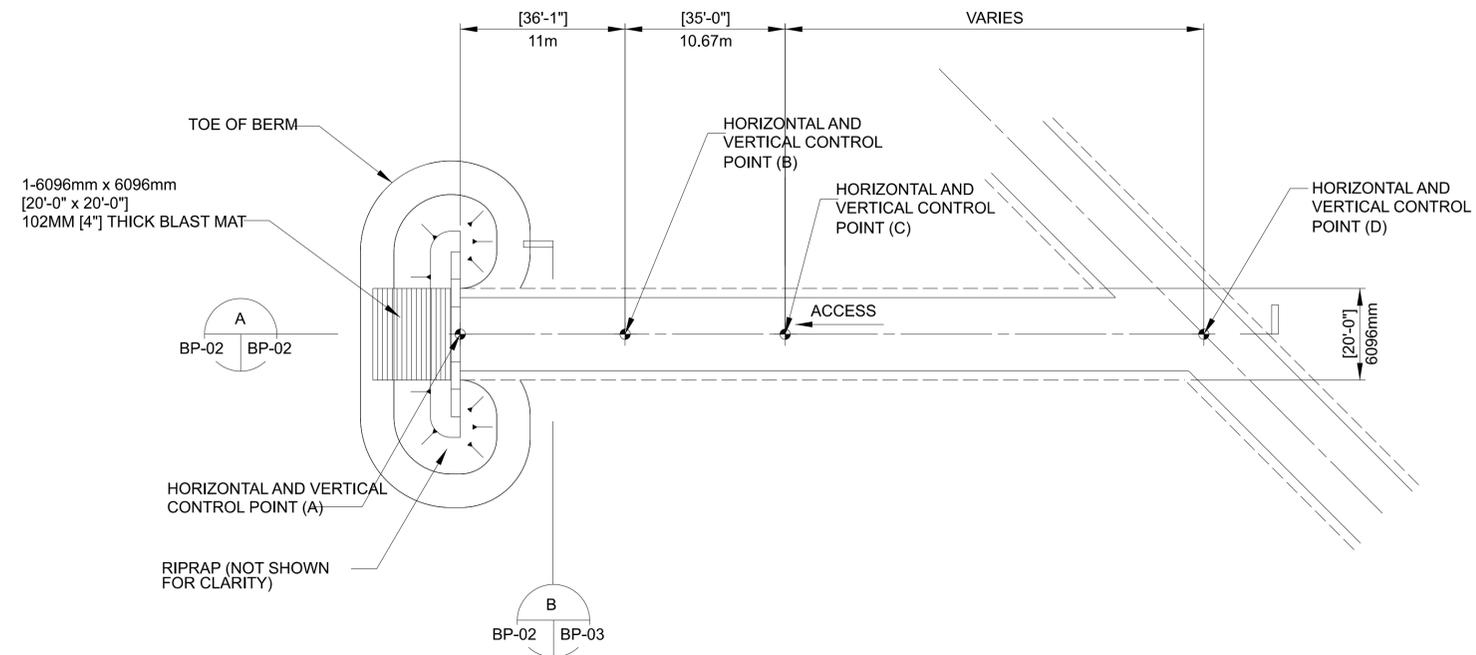






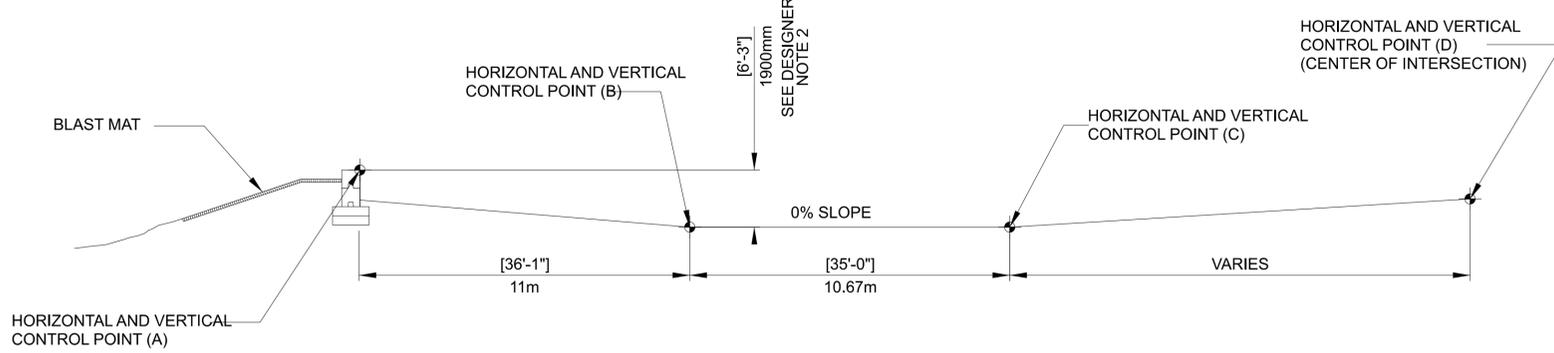






**PLAN**

SCALE: 1" = 20'



**DEFILADE (HULL DOWN)**

**GENERAL NOTES:**

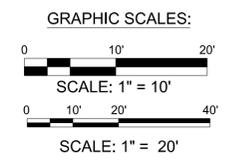
1. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa [4000PSI] IN 28 DAYS.
2. ALL REINFORCING STEEL SHALL BE PER ASTM A615, GRADE 60.
3. AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED OR RESURFACED CONSISTENT WITH THE NATURAL SURROUNDINGS. GROUND COVER SHALL NOT REDUCE TARGET VISIBILITY.
4. ALL DIMENSIONS ARE INDICATED AS FOLLOWS: METRIC [ENGLISH] UNITS FOR INSTANCE, 1372mm [4'-6"]

**NOTES TO DESIGNER:**

1. FOR DEFILADES LOCATED ON THE RIGHT SIDE OF THE TRAIL, PLAN SHOULD BE ANNOTATED FOR CONSTRUCTION IN A MIRROR IMAGE CONFIGURATION TO THAT SHOWN.
2. HULL DOWN HEIGHT SHALL BE COORDINATED WITH THE TRAINER. (HEIGHT MUST BE BELOW THAT OF THE TANK COMMANDER'S SIGHT)
3. SLOPED AREA AND TOP OF BERM IN FRONT OF RETAINING WALL SHALL BE COVERED WITH RIP-RAP DOWN TO THE POINT WHERE IT TIES TO EXISTING GROUND

**LEGEND**

- RIP-RAP
- BLASTMAT
- CONCRETE



DATE	DESCRIPTION	MARK

DESIGNED BY:	ISSUE DATE:
DRAWN BY:	SOLICITATION NO.:
CHECKED BY:	CONTRACT NO.:
SUBMITTED BY:	PROJECT NUMBER:
SIZE:	

U.S. ARMY CORPS OF ENGINEERS  
ENGINEERING & SUPPORT CENTER  
HUNTSVILLE, ALABAMA

MAY 2022

RANGE AND TRAINING LAND PROGRAM  
STANDARD DESIGN MANUAL

**HULL DOWN DEFILADE  
PLAN AND ELEVATIONS**

SHEET ID  
**BP-02**







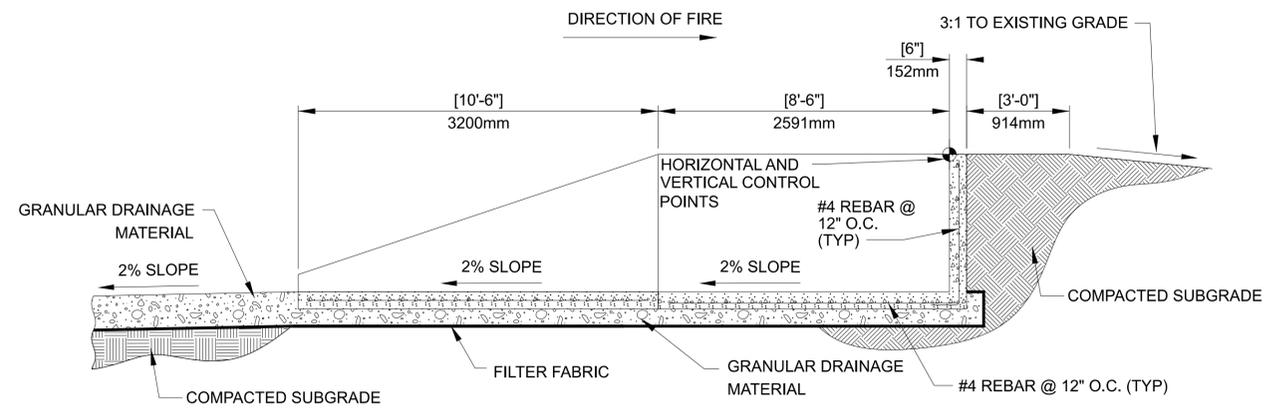


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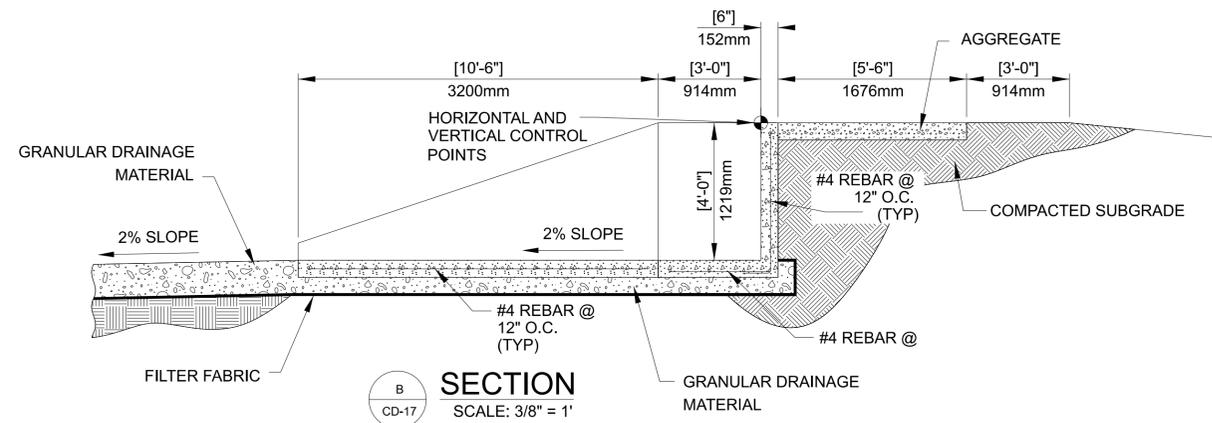
ISSUE DATE:	SOLICITATION NO.:
DESIGNED BY:	CONTRACT NO.:
DRAWN BY:	PROJECT NUMBER:
CHECKED BY:	SIZE:
U.S. ARMY CORPS OF ENGINEERS ENGINEERING & SUPPORT CENTER HUNTSVILLE, ALABAMA	MAY 2022

RANGE AND TRAINING LAND PROGRAM STANDARD DESIGN MANUAL	WALK-IN FIGHTING POSITION DETAILS
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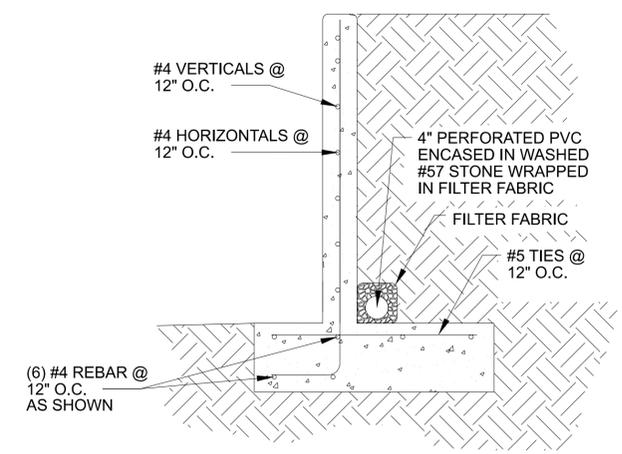
SHEET ID
FP-01



**SECTION A**  
SCALE: 3/8" = 1'

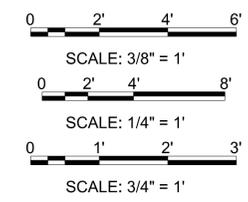


**SECTION B**  
SCALE: 3/8" = 1'



**SECTION D**  
SCALE: 3/4" = 1'

**GRAPHIC SCALES:**

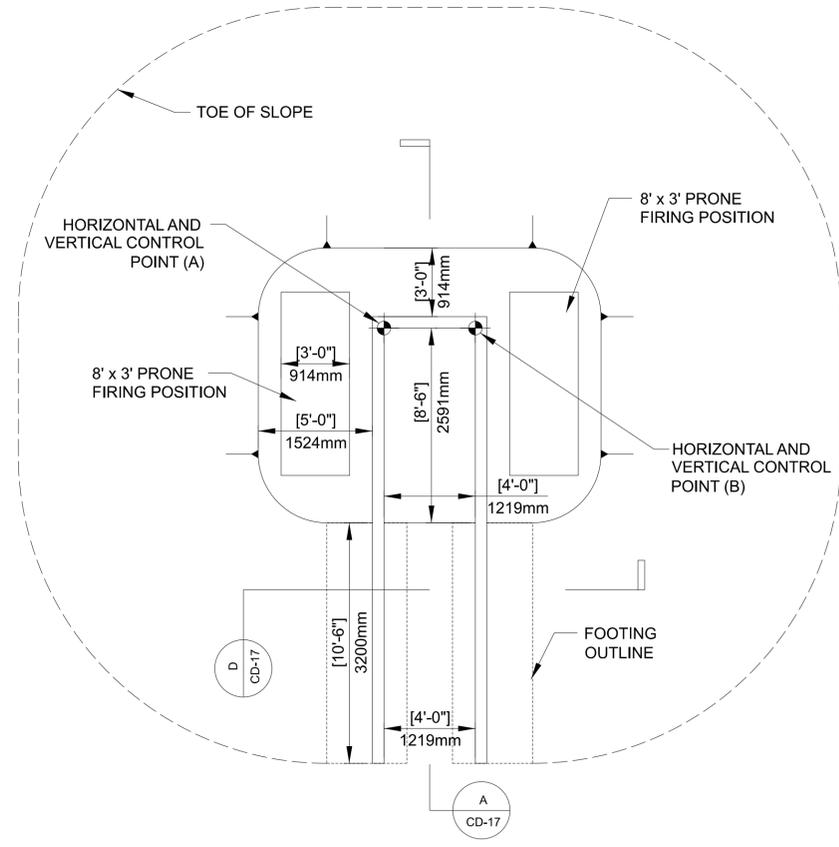


**GENERAL NOTES:**

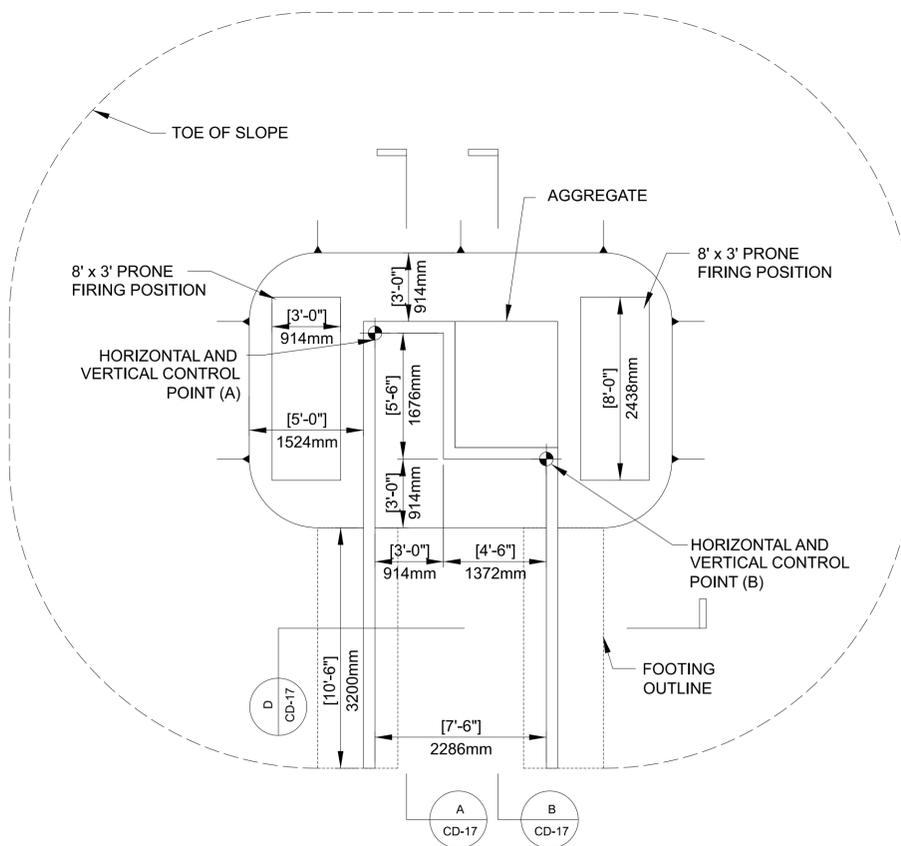
- CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 28MPa (4000psi) IN 28 DAYS.
- EMPLACEMENTS SHALL BE CONSTRUCTED OF REINFORCED CONCRETE; CONCRETE STRUCTURES SHALL BE PRECAST OR CAST-IN-PLACE. PRECAST STRUCTURE WILL HAVE LIFTING EYES CUT FLUSH.
- ALL REINFORCING STEEL SHALL BE PER ASTM A615, GRADE 60.
- AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED OR RESURFACED CONSISTENT WITH THE NATURAL SURROUNDINGS. GROUND COVER SHALL NOT REDUCE TARGET VISIBILITY.
- ALL DIMENSIONS ARE INDICATED AS FOLLOWS: METRIC UNITS [ENGLISH] FOR INSTANCE, 1372mm [4'-6"]
- PROVIDE 13mm [1/2"] CHAMFER ON ALL EXPOSED CONCRETE SURFACES.
- LABEL EACH EMPLACEMENT. COORDINATE WITH RANGE CONTROL FOR NUMBERING SCHEME.

**NOTES TO DESIGNER:**

- THE USING AGENCY MAY REQUIRE A SURFACE FOR A PRONE FIRING POSITION NEAR THE FOXHOLE. THE DESIGNER SHALL COORDINATE THE MATERIAL AND LOCATION WITH THE USING AGENCY.
- THE NEED FOR FILTER FABRIC SHOULD BE EVALUATED AS PART OF THE SITE ADAPTION PROCESS. A FILTER LAYER MAY OR MAY NOT BE REQUIRED DEPENDING UPON THE SOIL TYPE AT A PARTICULAR SITE.



**WALK-IN FIGHTING POSITION (ONE MAN) PLAN**  
SCALE: 1/4" = 1'



**WALK-IN FIGHTING POSITION (TWO MAN) PLAN**  
SCALE: 1/4" = 1'





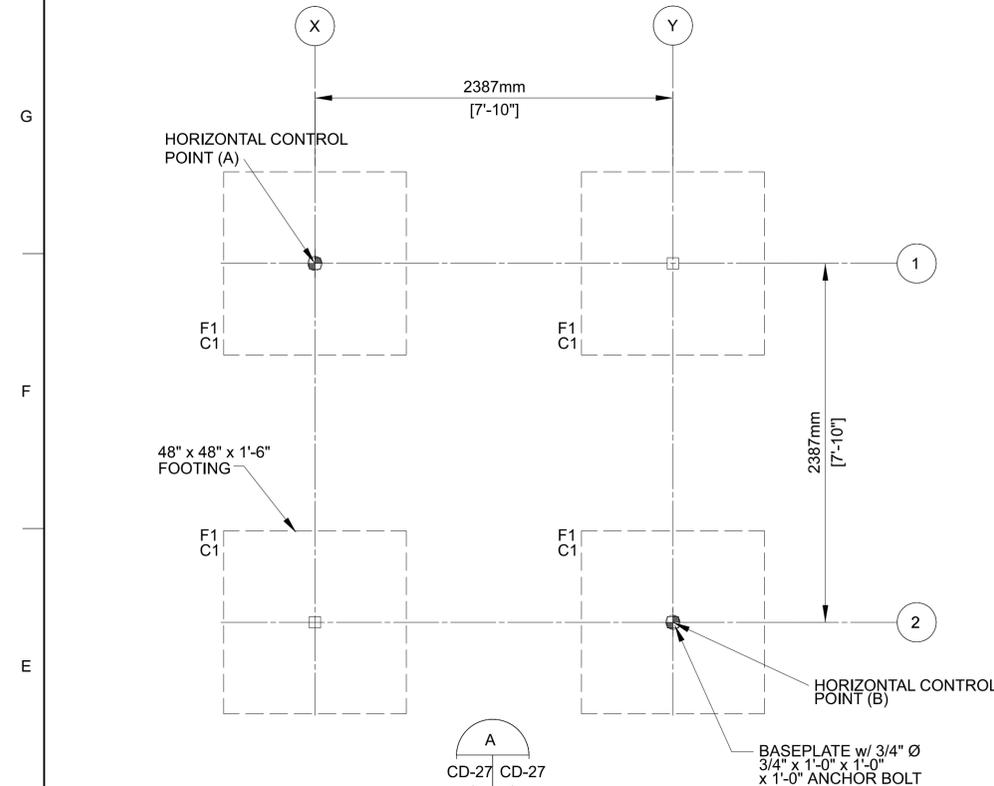








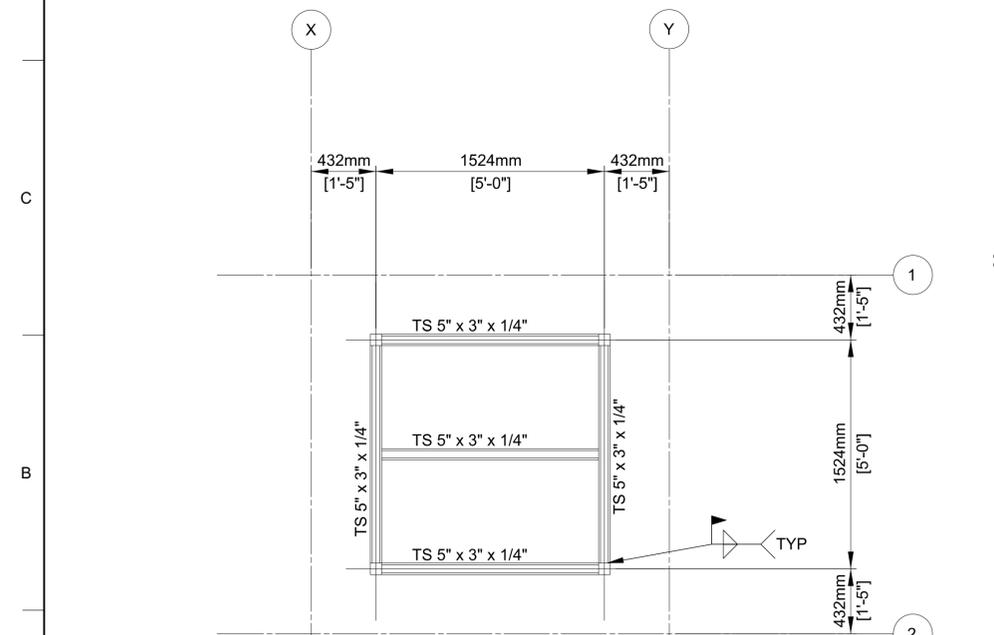




**FOUNDATION PLAN**

SCALE: 1" = 2'

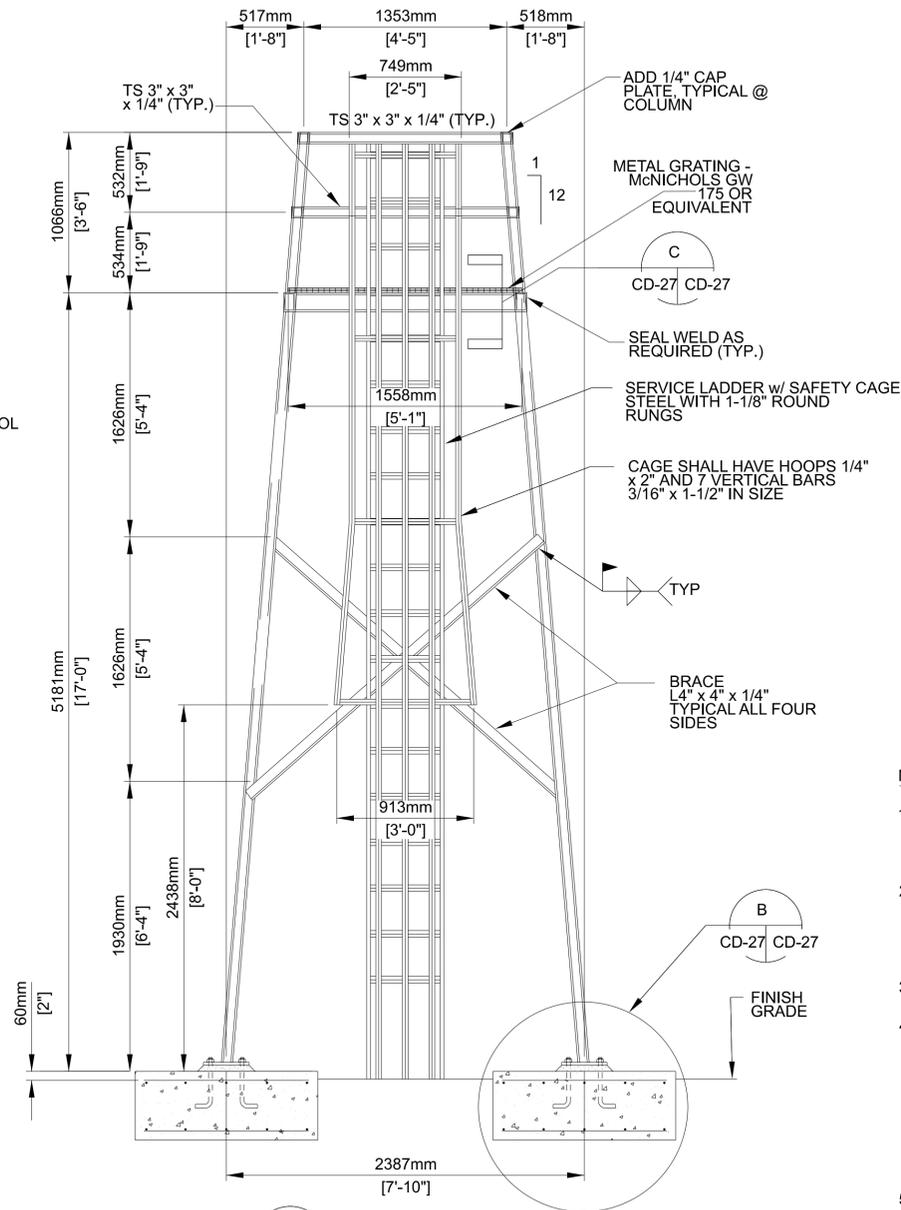
1. TOP OF FOOTINGS 2" ABOVE FINISHED GRADE.
2. F1-FOOTING TYPICAL 48" x 48" x 1'-6" w/ 5-#6's E.W. T & B
3. C1-COLUMN TYPICAL TS HSS 4" x 4" x 1/2" w/ BASEPLATE 3/4" x 1'-0" x 1'-0" w/ (4) 3/4" x 1'-0" LONG (9" ± 3" PROJECTION) ANCHOR BOLTS.
4. ALL EXPOSED STEEL TO BE GALVANIZED.



**PLATFORM PLAN**

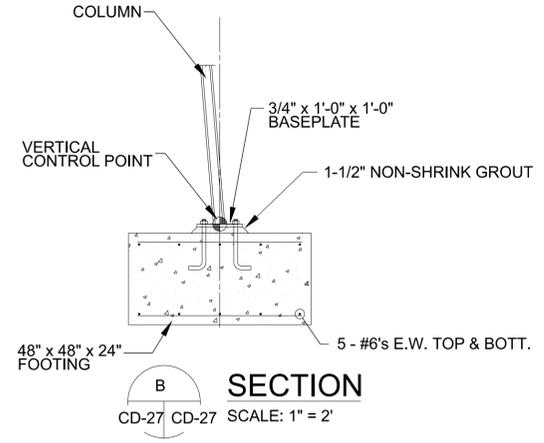
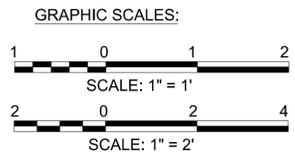
SCALE: 1" = 2'

1. TOP OF STEEL, 17'-0" ABOVE TOP OF FOOTING.



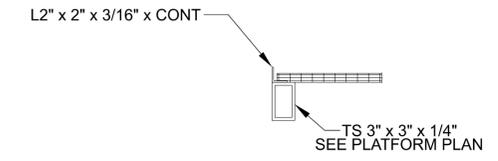
**ELEVATION**

SCALE: 1" = 2'



**SECTION B**

SCALE: 1" = 2'



**SECTION C**

SCALE: 1" = 1'

**NOTES TO DESIGNER:**

1. TOWER HEIGHTS SHOWN ON THIS SHEET IS FOR ILLUSTRATIVE PURPOSES ONLY. SITE CONDITIONS AND LINE OF SIGHT WILL DICTATE TOWER HEIGHT. MEMBER SIZING, CONNECTION DETAILS, ETC. SHALL ALL BE DESIGNED TO ACCOMMODATE THE SELECTED TOWER HEIGHT.
2. TOWER DESIGN SHALL CONFORM TO STANDARD EIA/TIA-22-F FOR 125 MPH BASIC WIND SPEED WITH NO ICE. THE MAXIMUM ACCEPTABLE SWAY FOR INSTRUMENTED RANGES IS 13mm IN A 50 kph WIND WITH A 600mm CUBE WEIGHING 32 kg CENTERED ON TOP (ONE HALF INCH IN A 30mph WIND WITH A 2 FOOT CUBE WEIGHING 70lbs)
3. THE TOWER SHALL BE GROUNDED IN ACCORDANCE WITH EIA STANDARDS.
4. THE FOUNDATION SHOWN IS TYPICAL. THE CONTRACTOR SHALL PROVIDE A DESIGN SUBMITTAL PACKAGE TO THE CONTRACTING OFFICER THAT IS STAMPED BY AN ENGINEER REGISTERED IN THE STATE. DESIGNER SHALL VERIFY SOIL CONDITIONS AND STRENGTHS PRIOR TO THE DESIGN OF THE FOUNDATION. THE FOUNDATION DESIGN PACKAGE SHALL INCLUDE ALL RELATIVE INFORMATION THE ENGINEER USED TO DETERMINE HIS DESIGN, INCLUDING (BUT NOT LIMITED TO) SOIL PRESSURE, CONCRETE STRENGTH, REBAR SIZING AND MATERIAL, EXCAVATION AND BACKFILL REQUIREMENTS, SOIL TYPE, SOIL COHESION, SOIL UNIT WEIGHT, INTERNAL ANGLE OF FRICTION, GROUND WATER ASSUMPTIONS, AND FROST ACTION CONSIDERATIONS.
5. THE TOWER SHALL NOT BE GUYED AND MUST BE FULLY SELF-SUPPORTING UNDER ALL OUTLINED DESIGN CRITERIA.
6. DESIGNER SHALL VERIFY THE NEED FOR AN AVIATION OBSTRUCTION LIGHT IN DESIGN OF TOWER AND PROVIDE IT IF NEEDED.
7. THE CONTRACTOR SHALL PROVIDE A 2 FOOT SQUARE, ONE HALF INCH THICK, CAMERA MOUNTING PLATE ON TOP OF THE TOWER DESIGNED TO SUPPORT 70 LBS.
8. SEE SHEET CD-27 FOR REMAINDER OF DETAILS FOR THIS TOWER.



DATE	DESCRIPTION	MARK

ISSUE DATE:	SOLICITATION NO.:	CONTRACT NO.:	PROJECT NUMBER:
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUBMITTED BY:
U.S. ARMY CORPS OF ENGINEERS ENGINEERING & SUPPORT CENTER HUNTSVILLE, ALABAMA			

U.S. ARMY CORPS OF ENGINEERS ENGINEERING & SUPPORT CENTER HUNTSVILLE, ALABAMA	MAY 2022
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RANGE AND TRAINING LAND PROGRAM  
STANDARD DESIGN MANUAL  
**TYPICAL CAMERA TOWERS**

SHEET ID  
**CT-02**

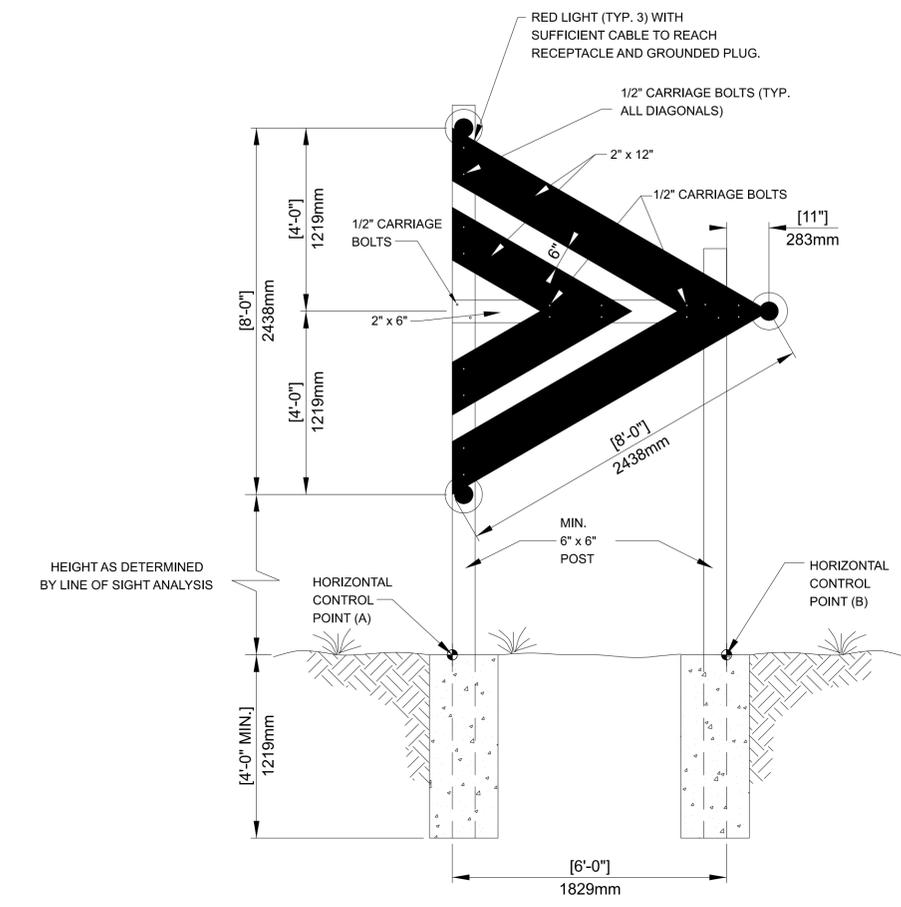
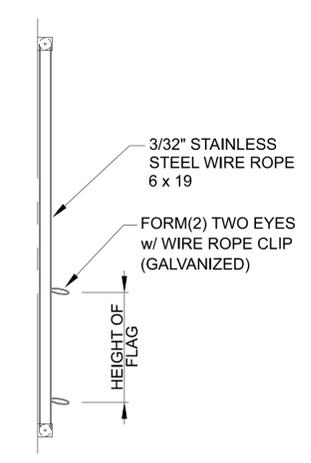
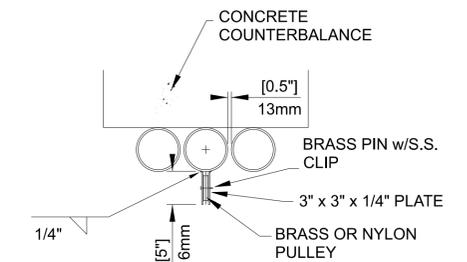
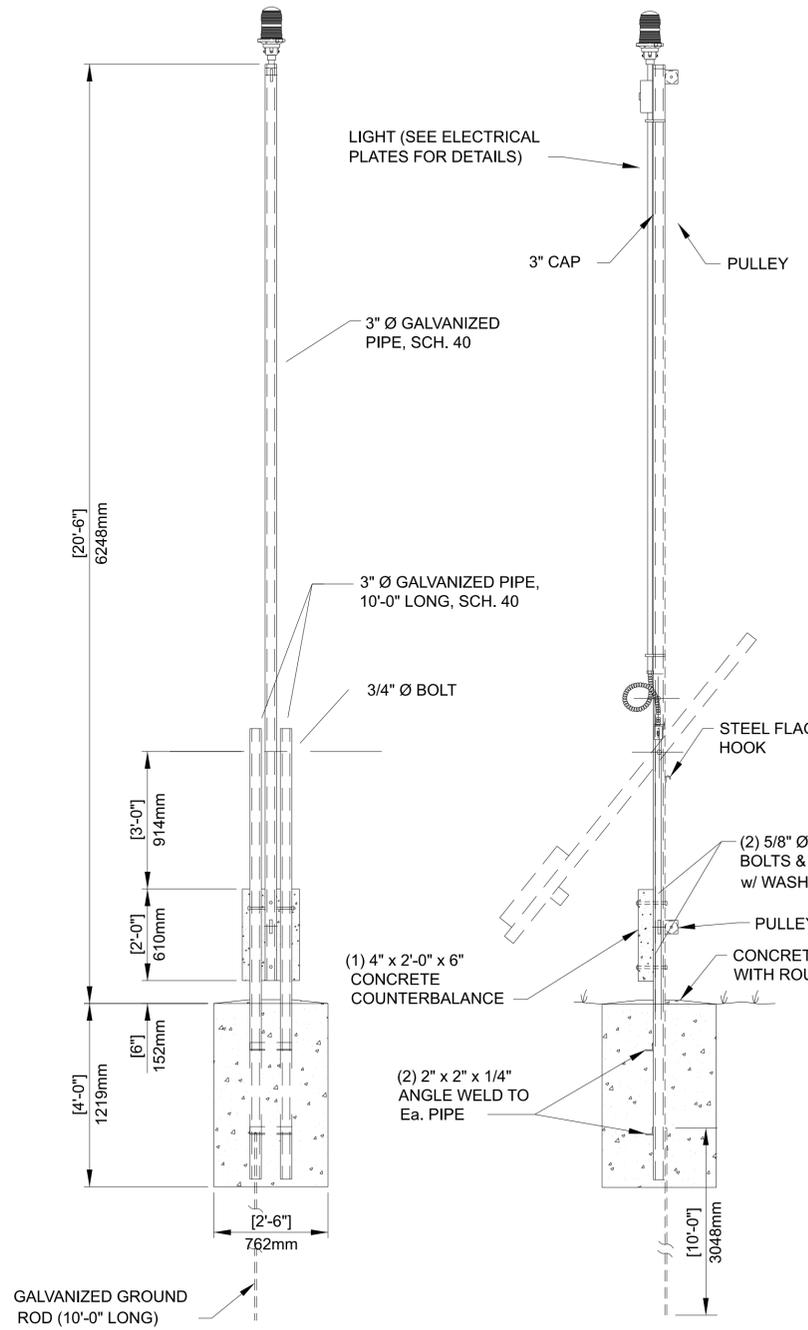
**FIXED HEIGHT PLATFORM TOWER**



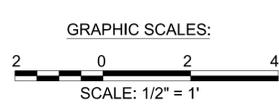




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A



- DESIGNER NOTES:**
1. POST SIZE AND FOOTINGS SHOWN ARE FOR REFERENCE ONLY. DESIGNER TO PROVIDE SITE SPECIFIC POST SIZE AND FOOTING DESIGN.
- NOTES:**
1. DIAGONALS SHALL BE PAINTED LUMINOUS INTERNATIONAL ORANGE.
  2. ALL HARDWARE SHALL BE GALVANIZED.
  3. ALL WOOD TO BE PRESERVATIVE TREATED.
  4. CARRIAGE BOLTS SHALL BE EQUIPPED WITH WASHER, LOCKWASHER, AND NUT.
  5. LAG BOLTS SHALL BE 1/4" DIAMETER AND EQUIPPED WITH WASHER.
  6. LEFT SIDE MARKER IS SHOWN; RIGHT SIDE MARKER OPPOSITE HAND.
  7. HORIZONTAL CONTROL POINT (A) IS LOCATED ON THE BEACON SIDE OF THE MARKER.
  8. THE STANDARD POST MATERIAL IS TREATED WOOD, HOWEVER, INSTALLATION APPROVED MATERIAL IS ACCEPTABLE.



MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
DRAWN BY:	SOLICITATION NO.:
CHECKED BY:	CONTRACT NO.:
SUBMITTED BY:	PROJECT NUMBER:
SIZE:	

RANGE AND TRAINING LAND PROGRAM  
STANDARD DESIGN MANUAL

**RANGE LIMIT MARKER  
AND FLAGPOLE DETAILS**

SHEET ID  
**RLM-01**





