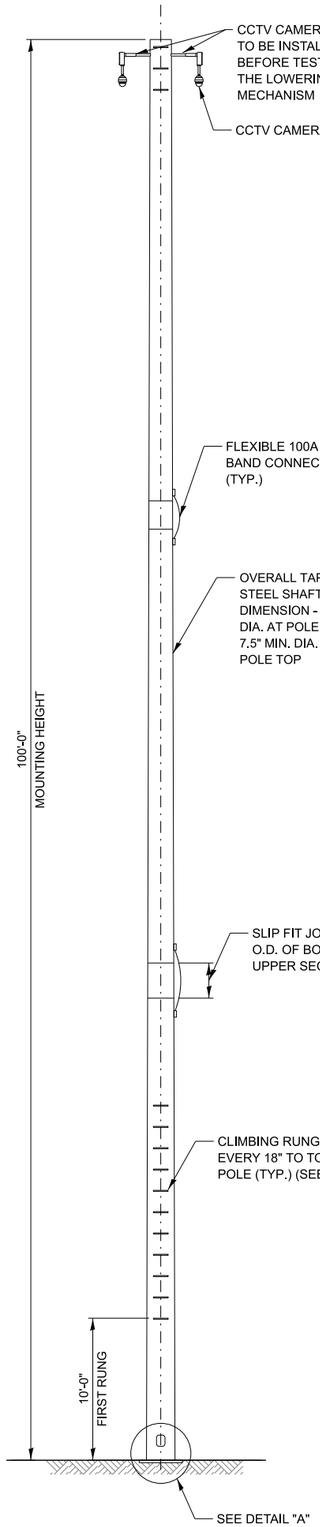
Illinois Tollway Base Sheet Revisions

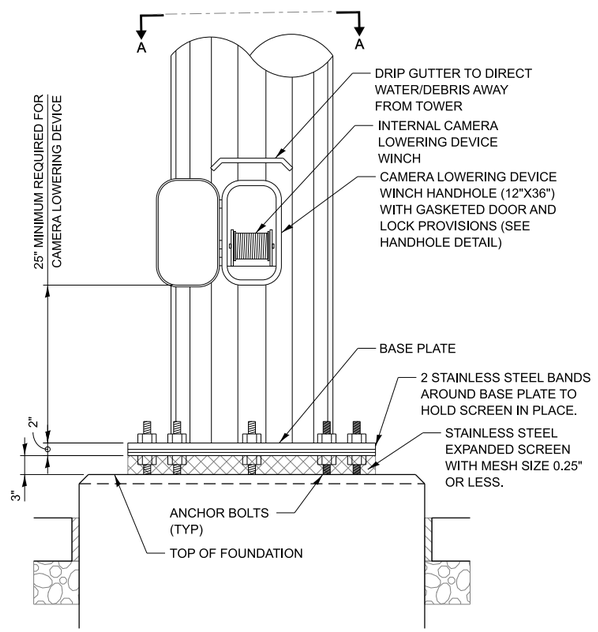
Section M	Base Sheet Drawings	
	Drawing	**Modification Summary** **Effective: 03-01-2024**
	100 FT. Monopole Camera Tower (ITS)-Series 2000	
	M-ITS-2000	**100 Ft. Monopole Closed Circuit Television (CCTV) Camera Tower**
	Sheet 1	Added Note: CCTV cameras to be installed before testing the lowering mechanism
		Added Note 14: Test the Cat 6 communication cable that runs from ITS enclosure to the top of each CCTV mounting housing. Test continuity at both ends of each Cat 6 cables after crimping their end connectors
		Added missing call out for 1 1/2" CNC conduit for power
		2" CNC to fiber optic changed to 1 1/2" conduit
		1 1/2" CNC to power change to 2" CNC conduit
	Sheet 4	Added dimension of ITS enclosure as reference

New Sheet

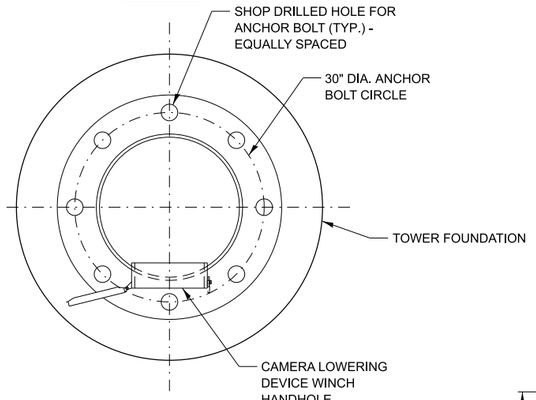
Retired Standard



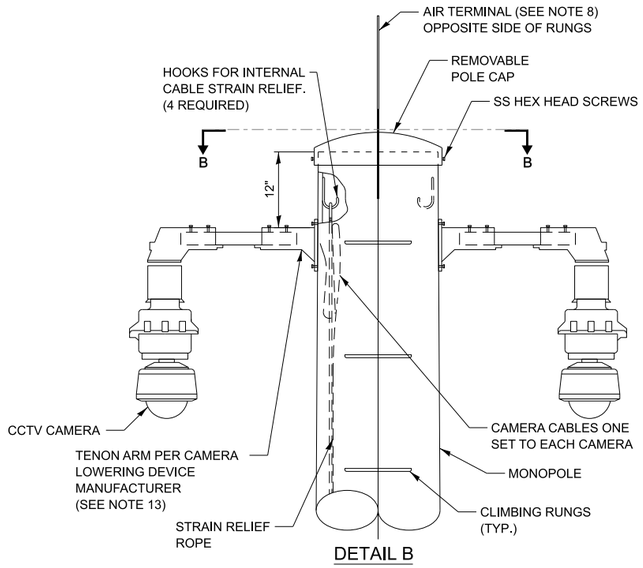
MONOPOLE TOWER



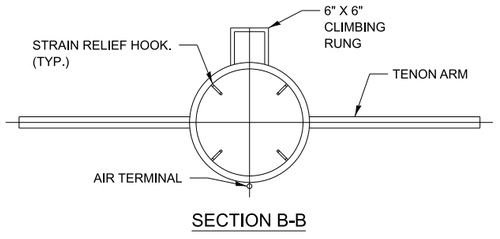
DETAIL A



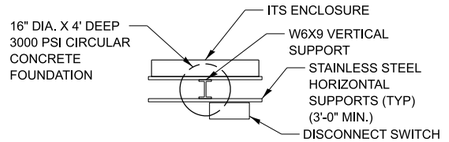
SECTION A-A



DETAIL B

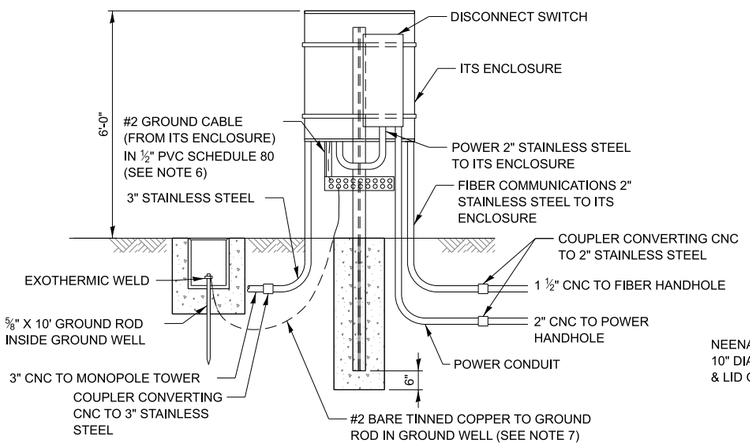


SECTION B-B



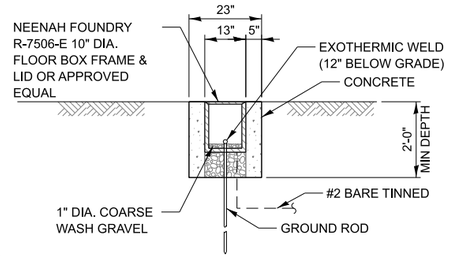
ITS ENCLOSURE PLAN DETAIL

NOT TO SCALE



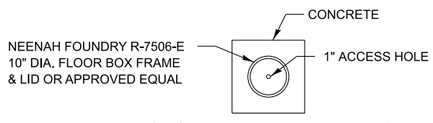
ITS ENCLOSURE ELEVATION DETAIL

NOT TO SCALE



GROUND WELL ELEVATION DETAIL

NOT TO SCALE



GROUND WELL PLAN DETAIL

NOT TO SCALE

NOTE TO DESIGNER

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NOTES:

1. THE MONOPOLE TOWER SHALL BE DESIGNED TO SATISFY FATIGUE CRITERIA PER AASHTO SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS 7TH ED. WITH 2017 & 2018 INTERIMS (NOTED HEREIN AS AASHTO) WITH THE PROCEDURE AND EXCEPTIONS AS NOTED IN SECTION 1069 OF THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS.
2. CAMERA WIRES SHALL EXTEND 24 INCHES LONGER THAN THEIR RESPECTIVE TENON ARM AND SHALL BE TRAINED BACK INTO THE ARM/POLE WHICH SHALL THEN BE CLOSED WITH A CAP AS SPECIFIED. ALL WIRES SHALL BE CAPPED WITH HEAT SHRINK INSULATING BOOTS. CRIMP CAPS ARE UNACCEPTABLE. ALL WIRES SHALL BE TAGGED WITH WIRE MARKERS AT BOTH ENDS. THE TENON ARMS SHALL BE TAGGED CORRESPONDING TO THE WIRING CONTAINED WITHIN.
3. ALL MULTI-CONDUCTOR CABLES SHALL BE FITTED WITH A HEAT-SHRINK MULTI-LEG BOOT. THE BOOT SHALL MEET MILITARY SPECIFICATION MIL-I-81765/1.
4. TENON ARM SHALL BE AS REQUIRED BY CAMERA LOWERING DEVICE MANUFACTURER.
5. CAMERA MOUNTING HARDWARE SHALL BE WATERTIGHT.
6. USE METAL BUSHING WHEN CONNECTING PVC TO CABINET. USE GROMMETS AT BOTH ENDS OF CONDUIT TO SEAL CONDUIT BUT ALLOW GROUND CABLE TO RUN THROUGH BOTH ENDS.
7. GROUND ROD SHALL BE PLACED A MINIMUM OF 10' FROM THE FOUNDATION. A GROUND WELL SHALL BE INCLUDED TO PERMIT ACCESS TO THE GROUND ROD CONNECTION. CONNECTION TO THE GROUND BUSBAR AND THE GROUND ROD SHALL BE EXOTHERMIC WELD.
8. AIR TERMINAL SHALL EXTEND A MINIMUM OF 3 FEET ABOVE TOP OF TOWER. AIR TERMINAL SHALL CONNECT TO TOWER USING STRAPS OR CLAMPS APPROVED BY THE ENGINEER. AIR TERMINAL SHALL BE EXOTHERMIC WELDED TO A #2/0 GROUNDING CONDUCTOR. GROUNDING CONDUCTOR SHALL BE STRAPPED TO MONOPOLE TOWER EVERY 10 FEET. GROUNDING CONDUCTOR SHALL EXTEND TO AND BE EXOTHERMIC WELDED TO THE NEAREST TOWER GROUND ROD.
9. CLIMBING RUNGS SHALL BE ORIENTED 90° FROM TENON ARMS AND ON THE SIDE OF POLE FACING AWAY FROM TRAFFIC. THE ORIENTATION OF CRANK HANDHOLE RELATIVE TO CAMERAS SO CAMERAS ARE NOT DIRECTLY ABOVE THE MAINTENANCE PERSONNEL.
10. FOUNDATION AND SERVICE PAD SHALL BE IN ACCORDANCE WITH SECTION 837 OF THE STANDARD SPECIFICATIONS AND PAID FOR AS LIGHT TOWER FOUNDATION, 48" DIAMETER (83700300).
11. MONOPOLE, LOWERING DEVICE, AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISION "MONOPOLE CCTV CAMERA TOWER ASSEMBLY".
12. THE MONOPOLE TOWER, ITS ENCLOSURE, AND FENCE GROUNDING SHALL BE IN ACCORDANCE WITH ILLINOIS TOLLWAY SPECIAL PROVISION "ITS ELEMENT SITE GROUNDING".
13. TENON ARMS MAY OPTIONALLY BE "TOP-MOUNTED".
14. TEST THE Cat 6 COMMUNICATION CABLE THAT WILL RUN FROM THE ITS ENCLOSURE UP TO EACH OF THE CCTV INSTALLED. TEST FOR CONTINUITY DURING INSTALLATION. IF ITS ENCLOSURE IS NOT INSTALLED AT THE TIME OF THE Cat 6 ETHERNET CABLE INSTALLATION INSIDE THE MONOTUBE UP TO EACH OF CCTV THEN TEST THE CONTINUITY AT BOTH END OF THE Cat 6 CABLE.

Illinois Tollway

100 FT. MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

VERSION:	STANDARD:	SHEET:
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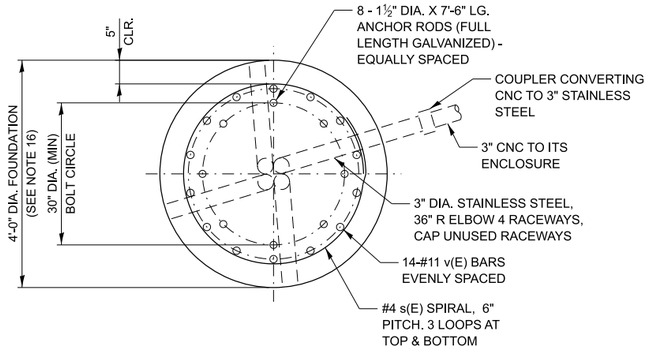
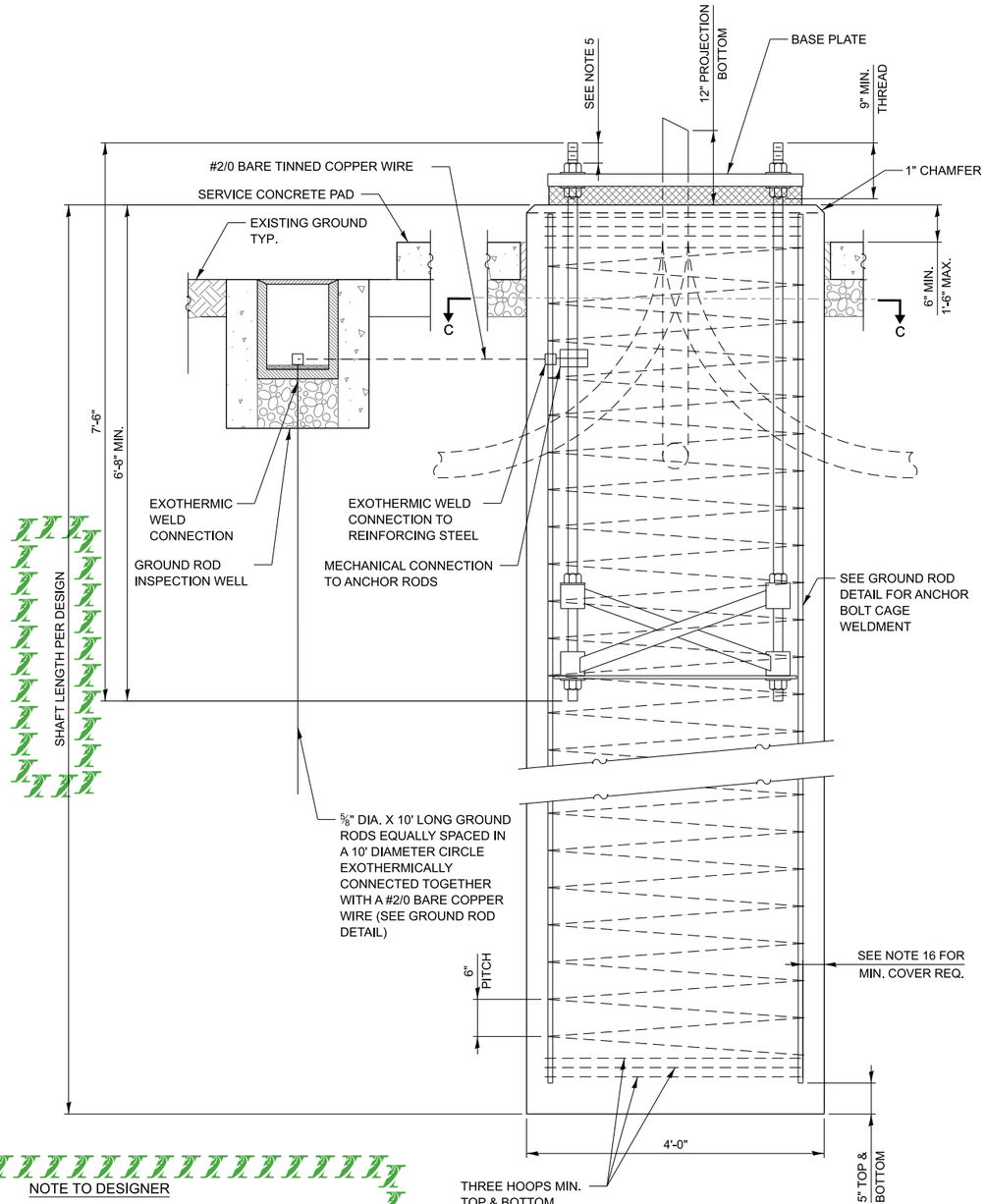


SECTION C-C

MONOPOLE FOUNDATION SCHEDULE						
STATION	SHAFT LENGTH	BAR	NUMBER	SIZE	LENGTH	SHAPE
		v(E)	14	11	SHAFT LENGTH-10"	—
		#4 SPIRAL s(E) - SEE FOUNDATION ELEVATION				
		v(E)	14	11	SHAFT LENGTH-10"	—
		#4 SPIRAL s(E) - SEE FOUNDATION ELEVATION				
		v(E)	14	11	SHAFT LENGTH-10"	
		#4 SPIRAL (E) - SEE FOUNDATION ELEVATION				

SHAFT LENGTH TABLE			
SOIL CONSISTENCY		AVERAGE STRENGTH Qu in tsf	SHAFT LENGTH
Cohesive	SOFT	< 0.5	22'-6"
	MEDIUM	0.5 to 1	18'-6"
	STIFF	1 to 2	15'-6"
	VERY STIFF	2 to 4	13'-6"
	HARD	> 4	12'-0"
		N in BLOWS/FT.	
Granular	VERY LOOSE	< 5	18'-0"
	LOOSE	5 to 10	16'-6"
	MEDIUM	10 to 25	15'-6"
	DENSE	25 to 50	15'-0"
	VERY DENSE	> 50	14'-0"



FOUNDATION ELEVATION

NOTE TO DESIGNER

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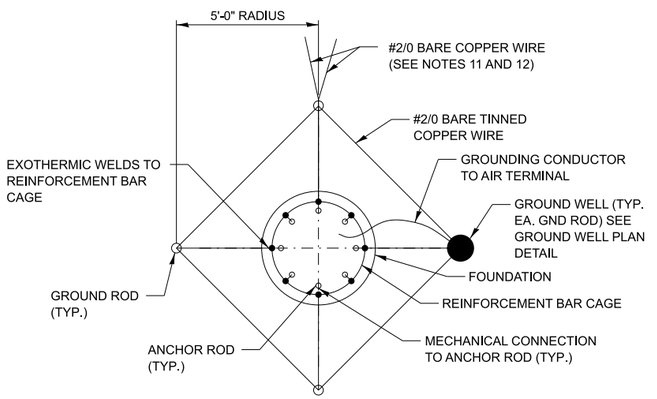
NOTES:

1. THE ANCHOR RODS SHALL BE VERTICAL. NO ADJUSTMENT SHALL BE ALLOWED AFTER THE FOUNDATION IS PLACED.
2. THE TOP OF THE FOUNDATION TO 18" BELOW GRADE SHALL BE FORMED.
3. SURFACE WATER WILL NOT BE PERMITTED TO ENTER THE HOLE AND ALL WATER WHICH MAY HAVE INFILTRATED INTO THE HOLE SHALL BE REMOVED BEFORE PLACING CONCRETE.
4. TWO ANCHOR RODS OPPOSITE EACH OTHER SHALL HAVE ROD THREADS PEENED AFTER NUTS ARE INSTALLED.
5. A MINIMUM OF THREE FULL THREADS SHALL REMAIN EXPOSED AFTER MONOPOLE TOWER IS INSTALLED.
6. STEEL ANCHOR ROD FORMS SHALL NOT BE REMOVED FOR A MINIMUM OF 3 DAYS AFTER CONCRETE IS POURED. THE TOWER SHALL NOT BE SET UNTIL THE CONCRETE HAS BEEN CURED ACCORDING TO ART. 1020.13 OF THE STANDARD SPECIFICATIONS, OR AS APPROVED BY THE ENGINEER.
7. ANCHOR ROD QUANTITY, DIAMETER, AND LENGTH SHALL BE DETERMINED BY THE TOWER MANUFACTURER AND APPROVED BY THE ENGINEER. EACH FOUNDATION SHALL HAVE A MINIMUM OF 8 ANCHOR RODS.
8. COORDINATE THE ROD CIRCLE DIAMETER OF THE TOWER WITH THE DIAMETER OF THE ANCHOR ROD CAGE.
9. THE FOUNDATION SHALL BE POURED MONOLITHICALLY AND SHALL HAVE NO CONSTRUCTION JOINTS.
10. ALL GROUNDING INDICATED ON THE PLANS SHALL BE INCLUDED IN THE COST OF ITS ELEMENT SITE GROUNDING.
11. FOUNDATION GROUNDING RING IS TO BE CONNECTED TO PLAZA BUILDING GROUNDING HALO, IF WITHIN 100 FEET OF ONE ANOTHER.
12. FOUNDATION GROUNDING RING IS TO BE CONNECTED TO ITS ENCLOSURE GROUNDING.
13. REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
14. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF DIFFERENT SOILS ARE FOUND DURING CONSTRUCTION THAN AS SHOWN IN THE SOIL BORINGS.
15. THE DRILLED SHAFT FOUNDATION CONCRETE SHALL BE CLASS DS WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI. THE REINFORCEMENT BARS SHALL HAVE A MINIMUM FIELD STRENGTH OF 60,000 PSI.
16. FOUNDATION DIAMETER BASED ON 5" CONCRETE COVER. THE MINIMUM COVER SHALL BE 3" IN DRY SHAFT EXCAVATION AND 4" IN A WET HOLE. WHEN ROCK IS ENCOUNTERED A 5" COVER AGAINST SOIL AND A 2" COVER AGAINST ROCK SHALL BE REQUIRED.



GROUND ROD DETAIL

Illinois Tollway

100 FT. MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

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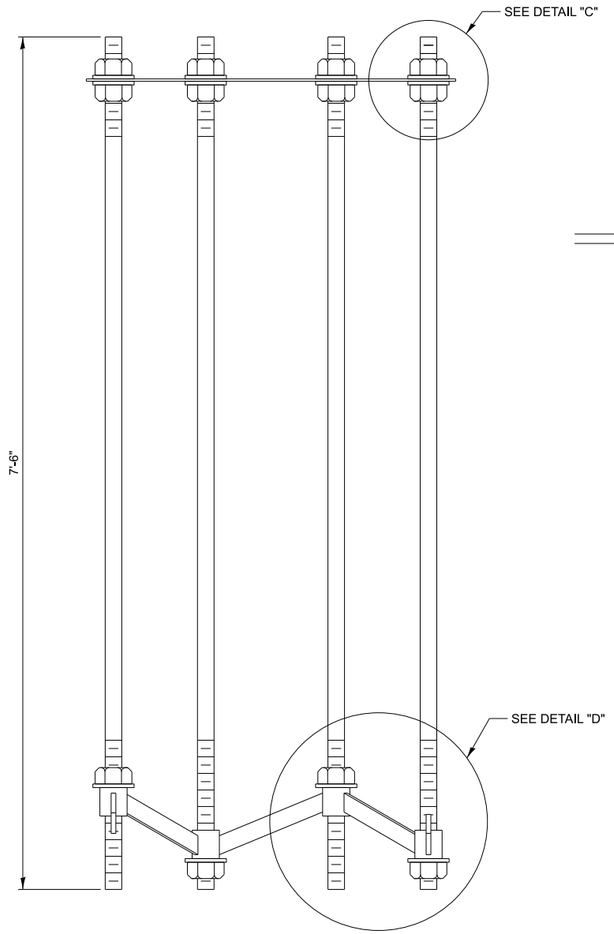
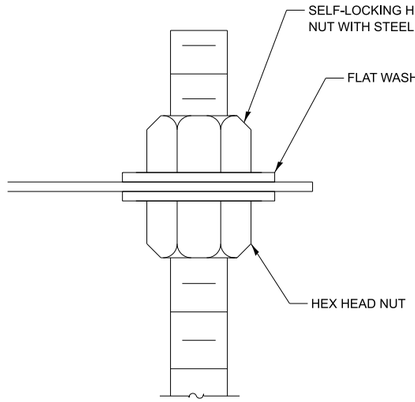


SECTION D-D



DETAIL "C"

NOTE TO DESIGNER

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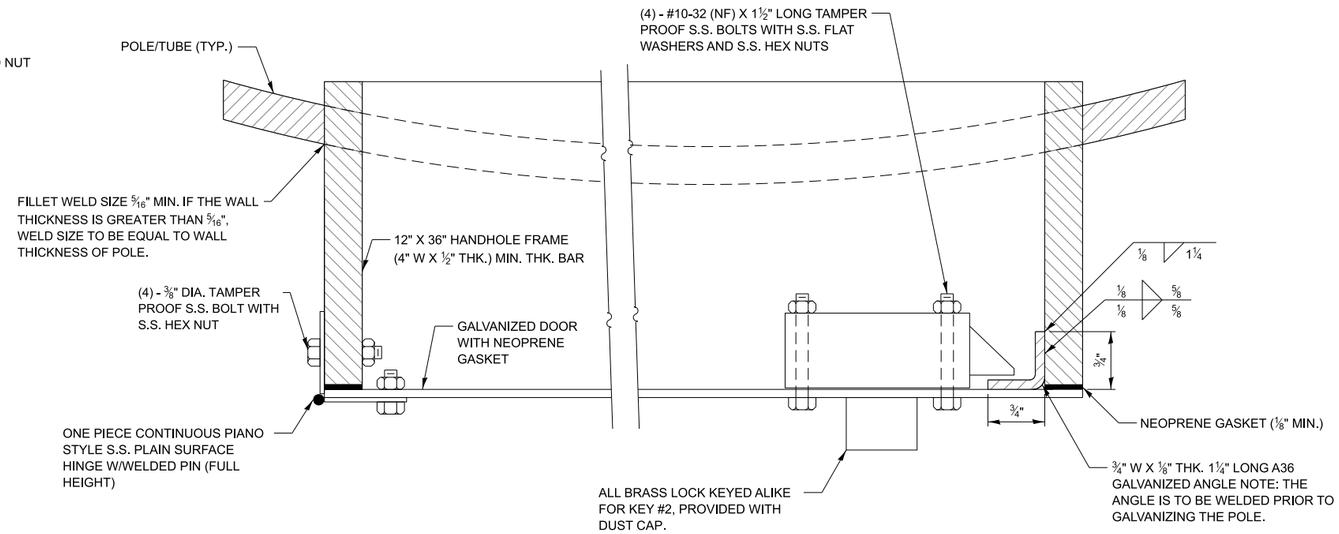
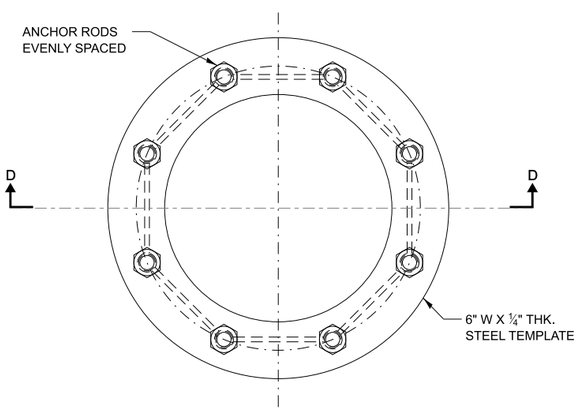
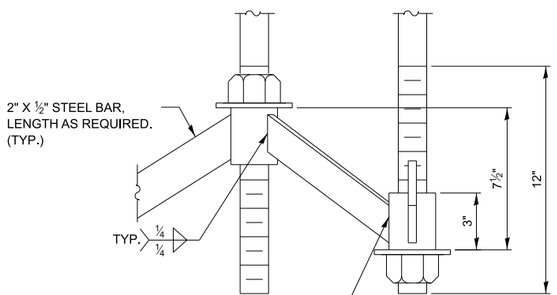


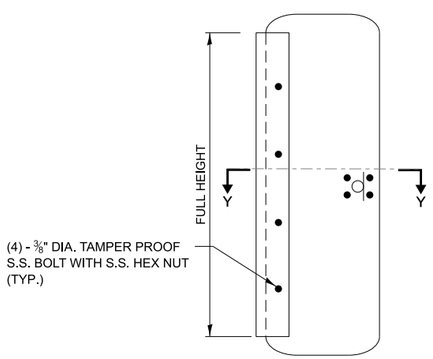
SECTION Y-Y



ANCHOR ROD CAGE (PLAN)



DETAIL "D"



HANDHOLE DETAIL
(FACTORY ASSEMBLED)

Illinois Tollway

100 FT. MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

VERSION:	STANDARD:	SHEET:
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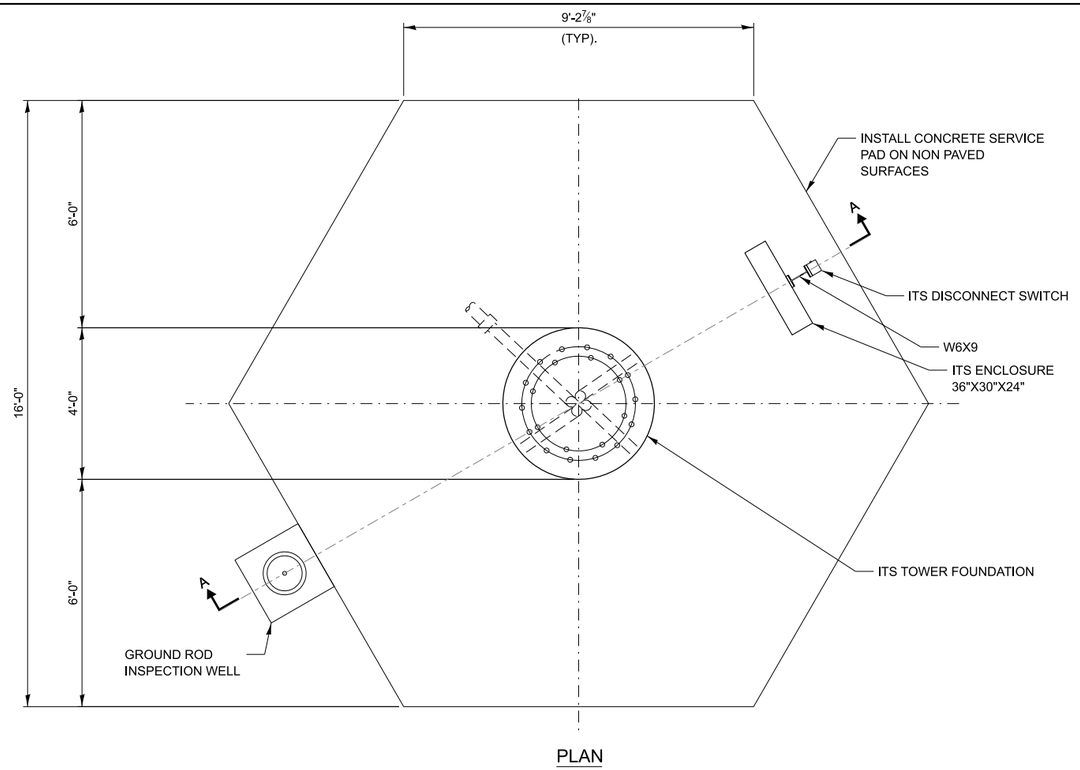
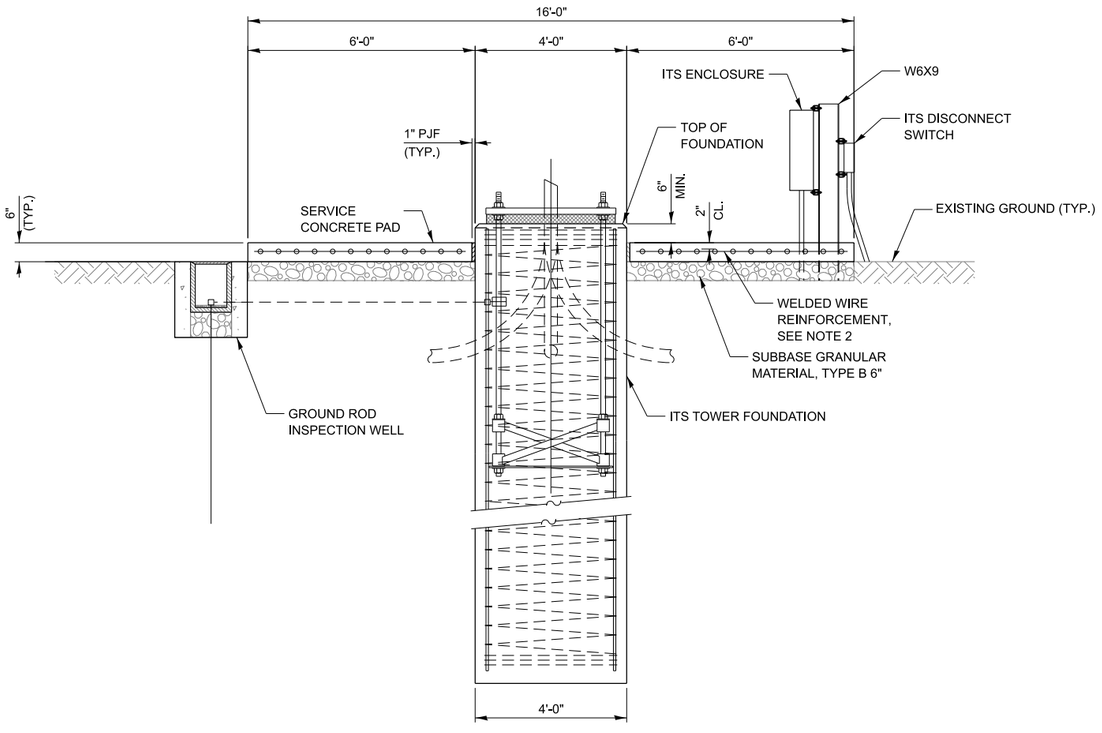


PLAN



SECTION A-A

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NOTES:

1. THE CONCRETE COMPRESSIVE STRENGTH SHALL BE F'C = 3,500 PSI. THE WELDED WIRE FABRIC GRADE SHALL BE FY = 65,000 PSI.
2. WELDED WIRE REINFORCEMENT SHALL HAVE A MINIMUM AREA OF 0.31 INCH IN EACH DIRECTION.
3. MIN. 3,000 PSF SOIL BEARING CAPACITY IS REQUIRED BELOW THE SERVICE PAD.
4. THE CABINET ASSEMBLY MUST BE ERECTED IN SUCH A WAY THAT THE CENTERLINE AXIS OF THE W-BEAM WEB IS LOCATED 90 DEGREES FROM THE CENTERLINE OF THE TENON ARM FOR THE CAMERAS.

Illinois Tollway

100 FT. MONOPOLE CLOSED CIRCUIT TELEVISION (CCTV) CAMERA TOWER

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