CITY OF RIDGELAND
MADISON COUNTY, MS

STEED ROAD & SUNNYBROOK ROAD INTERSECTION
TRAFFIC SIGNAL INSTALLATION

RIDGELAND CITY OFFICIALS:

MAYOR
GENE F. McGEE

BOARD OF ALDERMEN
KEN HEARD, WARD 1
CHUCK GAUTIER, WARD 2
KEVIN HOLDER, WARD 3
LARRY ROBERTS, WARD 4
SCOTT JONES, WARD 5
LINDA DAVIS, WARD 6
GERALD STEEN, AT–LARGE

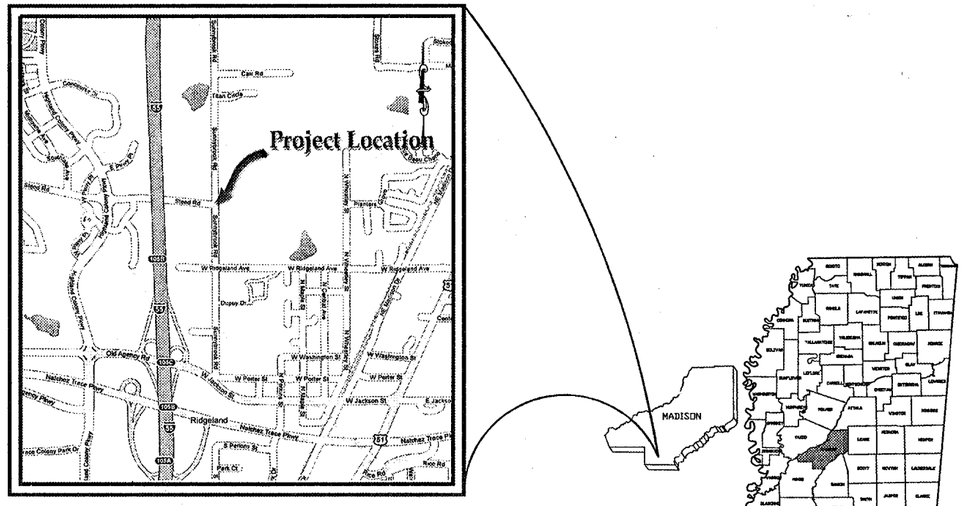
CITY ATTORNEY
JERRY MILLS

DIRECTOR OF PUBLIC WORKS
MIKE McCOLLUM

ASST. DIRECTOR OF PUBLIC WORKS
BEN MAYS

CITY ENGINEER
DAVID E. WILLIAMS, P.E.

INDEX TO DRAWINGS



VICINITY MAP

CITY OF RIDGELAND
STEED ROAD & SUNNYBROOK ROAD INTERSECTION
TRAFFIC SIGNAL INSTALLATION WEI# T08-019

SEPTEMBER 2008
WEI #T08–019

9/10/08

PWP-01952

PROJECT NO.
T08-019

SUMMARY OF QUANTITIES

PAY ITEM NO.	PAY ITEM ROADWAY ITEMS	TOTAL QUANTITIES UNIT	EST.	FINAL
1	Mobilization	LS	LS	
2	Clearing and Grubbing	LS	LS	
3	Removal of Curb	LF	70	
4	Maintenance of Traffic	LS	LS	
5	Solid Sod	SY	250	
6	Combination Curb and Gutter (Per Plans)	LF	70	
7	Concrete Sidewalk with Reinforcement	SY	90	
8	Detectable Warnings (Brick Pavers or Approved Equivelant)	SY	3	
9	Bollards	EA	6	
10	4" Thermoplastic Detail Stripe, Yellow	LF	500	
11	4" Thermoplastic Detail Stripe, White	LF	1000	
12	Thermoplastic Legend, White	SY	50	
13	Vehicle Loop Assemblies	LF	1000	
14	Shielded Cable	LF	2200	
15	Loop Detedtor Amplifier, Card Rack Mounted, 4 Channel	EA	3	
16	Traffic Signal Equipment Pole, Type III, 22' Shaft, 35' Arm 2	EA	2	
17	Traffic Signal Equipment Pole, Type III, 22' Shaft, 30' Arm 1	EA	1	
18	Traffic Signal Equipment Pole, Type IV, 30' Shaft, 45' Arm 1	EA	1	
19	Traffic Signal Heads (Type 1), LED	EA	5	
20	Traffic Signal Heads (Type 3), LED	EA	2	
21	Traffic Signal Heads (Type 6), LED	EA	4	
22	Traffic Signal Heads (Type 7), LED	EA	1	
23	Solid State Traffic Actuated Controller, Type 8A	EA	1	
24	Optical Detector one Optical Detector One Channel	EA	4	
25	Optical Detector Cable	LF	800	
26	Optical Phase Selector (4 Channel) and optical Rack (1)	EA	1	
27	Pullboxes (Type 1)	EA	4	
28	Pullboxes (Type II)	EA	2	
29	Pullboxes (Type IV) 48	EA	4	
30	Fiber Optic Cable, 72 SM	LF	1450	
31	Traffic Sign (Encapsulated Lens)	EA	50	
32	Electrial Cable (Underground in Conduit) (ISMAM20-1) (AWG #14) (5 Conductor)	LF	600	
33	Electrial Cable (Underground in Conduit) (ISMAM20-1) (AWG #14) (7 Conductor)	LF	650	
34	Electrial Cable (Underground in Conduit) (ISMAM20-1) (AWG #6) (2 Conductor)	LF	50	
35	Electrial Cable (Aerial Supported) (IMSA 20-1) (AWG #14) (7 Conductor)	LF	150	
36	Traffic Signal Conduit (Underground) (Type IV),(2")	LF	2220	
37	Traffic Signal Conduit (Underground) (Type IV),(3")	LF	10	
38	Traffic Signal Conduit (Underground) (Drilled or Jacked), Roll Pipe, 2"	LF	500	
39	Traffic Signal Conduit (Underground) (Drilled or Jacked), Roll Pipe 3"	LF	95	
40	Stinger Modular System (Installed)	EA	1	
41	(UPS) Uninterupted Power System	EA	1	
42	Street Name Sign (Encapsulated Lens)	SF	60	

GENERAL NOTES

1. THE LOCATION OF THE UTILITIES SHOWN ON THE PLANS ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THESE LOCATIONS ARE ONLY CONSIDERED APPROXIMATE. THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR THAT ALL UTILITIES ARE SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ANY INDEPENDENT INVESTIGATIONS, INCLUDING ANY SUBSURFACE INVESTIGATIONS, AS MAY BE DEEMED NECESSARY. THE CONTRACTOR SHALL COORDINATE THE LOCATION (HORIZONTAL AND VERTICAL) OF EXISTING UTILITES (POWER, TELEPHONE, GAS WATER, SEWER, ETC.) WITH THE APPROPRIATE UTILITY COMPANY BEFORE CONSTRUCTION BEGINS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING HORIZONTAL AND VERTICAL CLEARANCES ON ANY UTILITY SERVICE CROSSINGS REQUIRED BEFORE INSTALLATION.
3. UTILITY OR SERVICE LINES ENCOUNTERED DURING CONSTRUCTION, WHETHER SHOWN ON THE DRAWINGS OR NOT, SHALL BE PROTECTED BY THE CONTRACTOR AND REPAIRS NECESSARY DUE TO DAMAGE TO SAME BY THE CONTRACTOR SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
4. PRIVATE UTILITIES CONFLICTING WITH CONSTRUCTION TO BE REMOVED/REPLACED BY OTHERS.
5. ANY TBM'S WHICH ARE OR MAY BE IN CONFLICT WITH CONSTRUCTION ACTIVITIES SHALL BE RELOCATED BY THE CONTRACTOR AT NO COST TO THE OWNER PRIOR TO COMMENCEMENT OF CONSTRUCTION IN THE IMMEDIATE AREA.
6. THE ENGINEER SHALL STAKE THE CONTROL POINTS NECESSARY FOR CONSTRUCTION OF THE PROJECT ONE TIME ONLY.
7. ALL DETAILED CONSTRUCTION STAKING WILL BE BY CONTRACTOR AT NO COST TO THE OWNER.
8. THE CONTRACTOR SHALL MAINTAIN THROUGH TRAFFIC ALONG EXISTING ROADS FOR THE LENGTH OF THE CONTRACT PERIOD. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTOL DEVICES, LATEST EDITION(S).
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING ALL SAMPLING AND TESTING OF MATERIALS INCORPORATED INTO THE PROJECT AND FOR SUBMISSION OF SAME TO ENGINEER FOR REVIEW. PRIOR USE TEST RESULTS, MANUFACTURER'S CERTIFICATES, OR PROPOSED MIX DESIGNS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE INCORPORATION INTO PROJECT. THIS SHALL INCLUDE BACKFILL, CONCRETE, ASPHALT, STEEL, STRIPING MATERIAL, PIPING, MATERIALS, AGGREGATES, SEED, AND OTHER ITEMS AS SPECIFIED BY THE ENGINEER.
10. TESTING CERTIFICATIONS SHALL STATE THAT THE SUBJECT MATERIAL MEETS THE SPECIFIED QUALITY, GRADE, PURITY, CLASS OR WEIGHT, OR THAT THE SUBJECT MATERIAL MEETS OR EXCEEDS THE REQUIREMENTS OF THE APPLICABLE ASTM, AASHTO, MDOT OR OTHER STANDARDS. CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO INCORPORATION OF THE SUBJECT MATERIAL INTO THE PROJECT.
11. TRAFFIC SIGNS REQUIRED UNDER THIS CONTRACT SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE PROJECT DRAWINGS AND THE MISSISSIPPI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, MDOT, 2004 EDITION AS IF SAID STANDARDS WERE WRITTEN OUT HEREIN IN FULL. MEASUREMENT AND PAYMENT FOR TRAFFIC SIGNS SHALL BE AS SPECIFIED ON THE BID FORM.

SUMMARY OF QUANTITIES
STEED AND SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

WAGGONER ENGINEERING, INC.
Consulting Engineers — Jackson, Mississippi

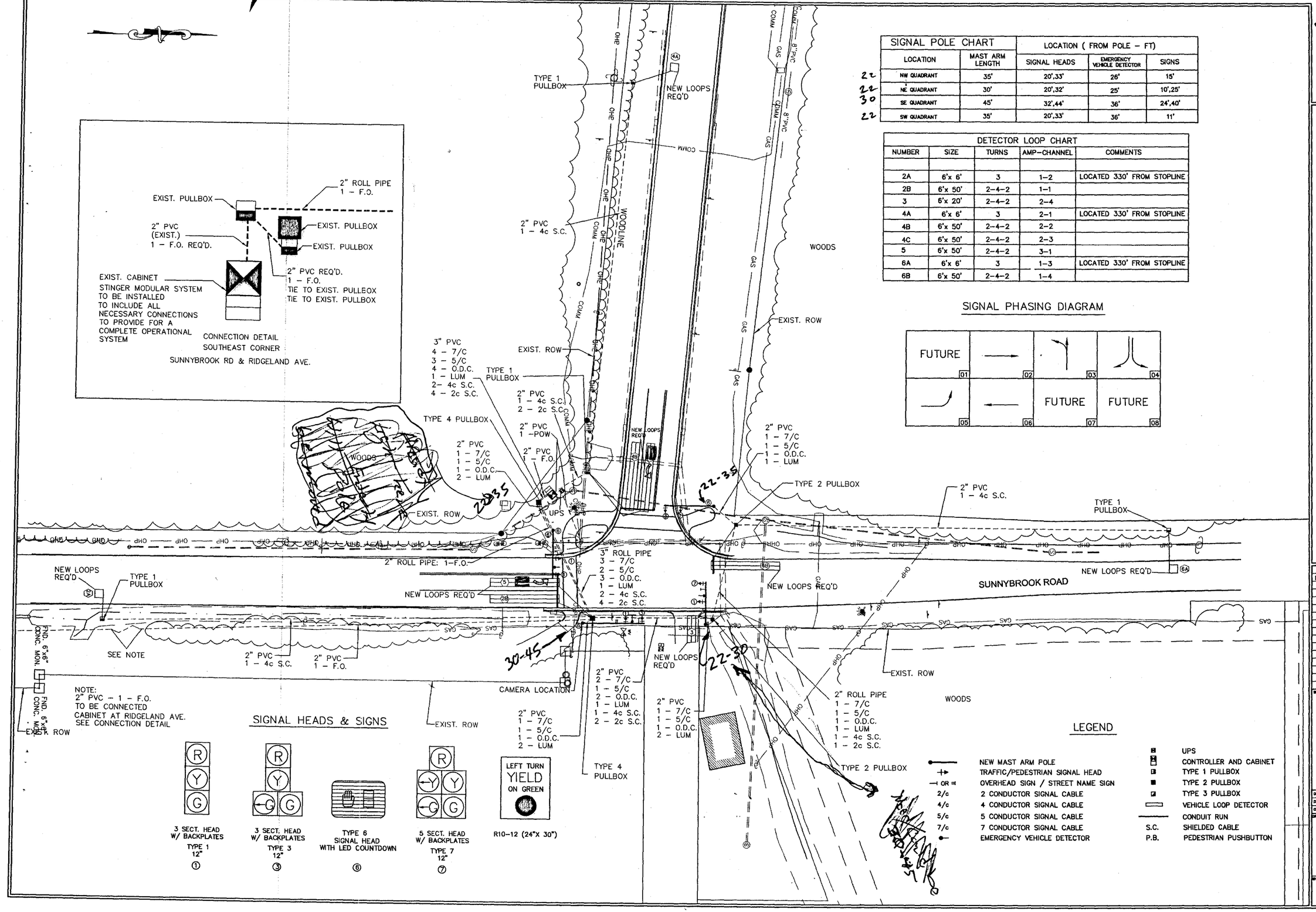
DRAWN BY:	DATE: 8-20-08	SHEET NUMBER
REVISED BY:	SCALE: N.T.S.	2

CONNECTION DETAIL
SOUTHEAST CORNER
SUNNYBROOK RD & RIDGELAND AVE.

SIGNAL POLE CHART		LOCATION (FROM POLE – FT)		
LOCATION	MAST ARM LENGTH	SIGNAL HEADS	EMERGENCY VEHICLE DETECTOR	SIGNS
NW QUADRANT	35'	20',33'	26'	15'
NE QUADRANT	30'	20',32'	25'	10',25'
SE QUADRANT	45'	32',44'	36'	24',40'
SW QUADRANT	35'	20',33'	36'	11'

DETECTOR LOOP CHART				
NUMBER	SIZE	TURNS	AMP–CHANNEL	COMMENTS
2A	6'x 6'	3	1–2	LOCATED 330' FROM STOPLINE
2B	6'x 50'	2–4–2	1–1	
3	6'x 20'	2–4–2	2–4	
4A	6'x 6'	3	2–1	LOCATED 330' FROM STOPLINE
4B	6'x 50'	2–4–2	2–2	
4C	6'x 50'	2–4–2	2–3	
5	6'x 50'	2–4–2	3–1	
6A	6'x 6'	3	1–3	LOCATED 330' FROM STOPLINE
6B	6'x 50'	2–4–2	1–4	

SIGNAL PHASING DIAGRAM



SIGNAL HEADS & SIGNS

LEGEND

NEW MAST ARM POLE	UPS
TRAFFIC/PEDESTRIAN SIGNAL HEAD	CONTROLLER AND CABINET
OVERHEAD SIGN / STREET NAME SIGN	TYPE 1 PULLBOX
2 CONDUCTOR SIGNAL CABLE	TYPE 2 PULLBOX
4 CONDUCTOR SIGNAL CABLE	TYPE 3 PULLBOX
5 CONDUCTOR SIGNAL CABLE	VEHICLE LOOP DETECTOR
7 CONDUCTOR SIGNAL CABLE	CONDUIT RUN
EMERGENCY VEHICLE DETECTOR	S.C. SHIELDED CABLE
	P.B. PEDESTRIAN PUSHBUTTON

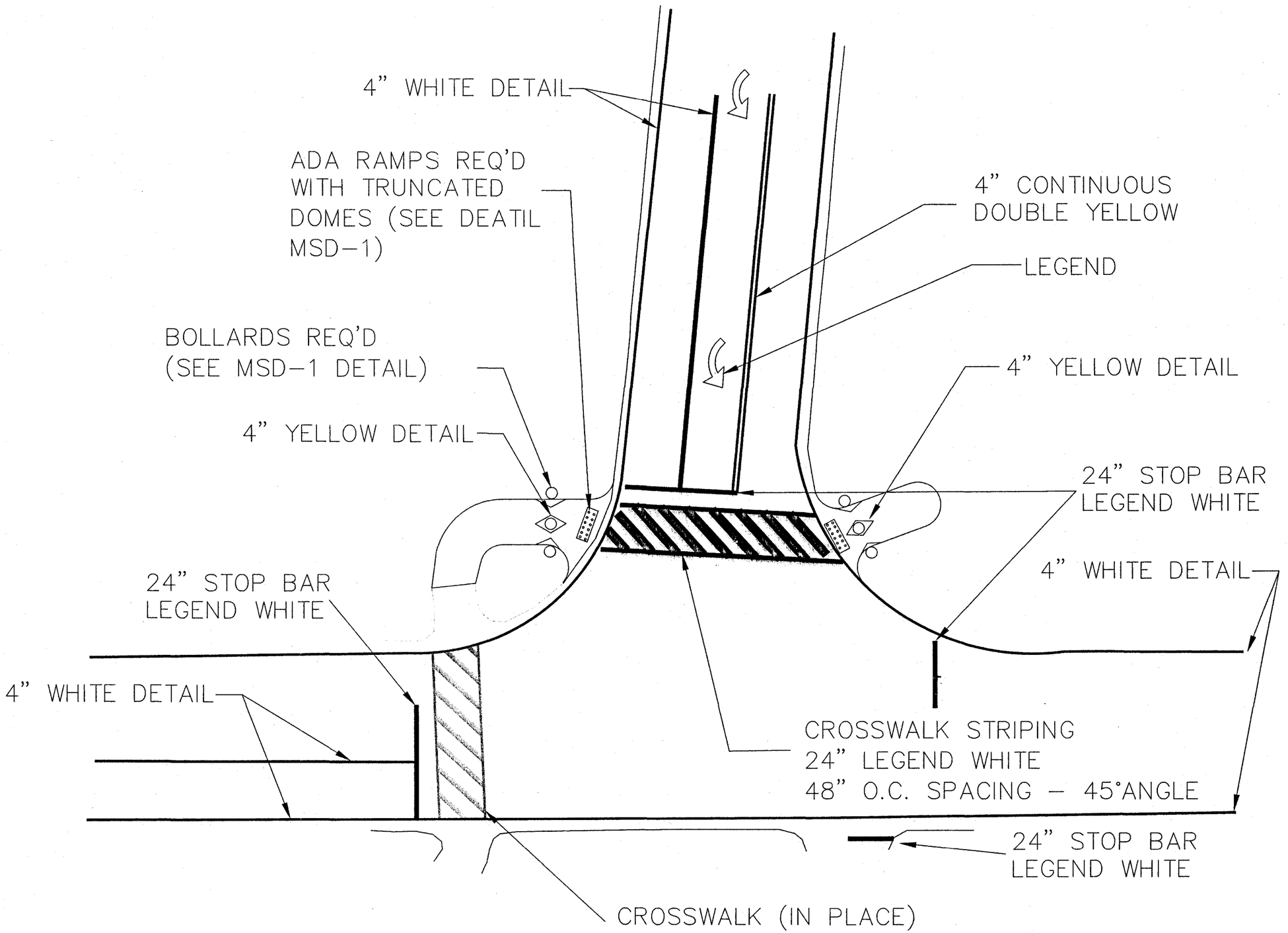
WAGGONER
Engineers, Surveyors, Planners
143–A LeFleure Square
JACKSON, MS 39211
601–355–9526
FAX 601–352–3945

SUNNYBROOK ROAD AND STEED ROAD
SIGNAL INSTALLATION
CITY OF RIDGELAND

DRAWING REVISIONS

NO.	REMARKS	DATE

TRAFFIC SIGNAL INSTALLATION



WAGGONER
Engineers, Surveyors, Planners
143-A LeFleurs Square
JACKSON, MS 39211
601-355-9526
FAX 601-352-3945

SUNNYBROOK ROAD AND STEED ROAD
SIGNAL INSTALLATION
CITY OF RIDGELAND

DRAWING REVISIONS

NO.	REMARKS	DATE

DRAWN BY: . SCALE: 1" = 10'
DESIGNED BY: . DATE: 09-05-2008
CHECKED BY: . PROJECT: .
DRAWING TITLE

STRIPING PLAN

SHEET NUMBER

4

(5) N 1069188.07
E 2355984.91

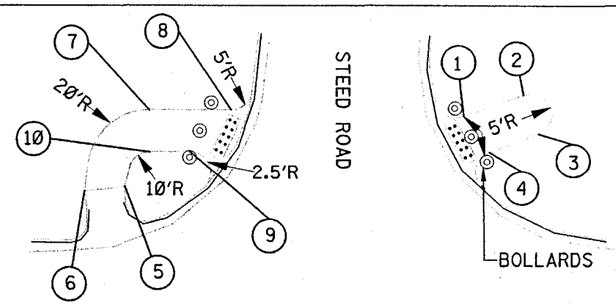
(6) N 1069178.48
E 2355985.93

(7) N 1069199.05
E 2355965.95

(8) N 1069213.02
E 2355966.26

(9) N 1069208.82
E 2355975.95

(10) N 1069198.83
E 2355975.95

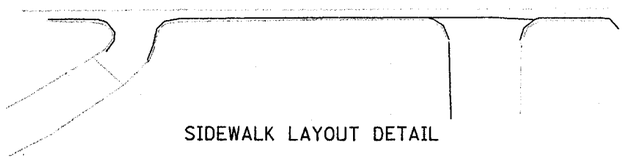


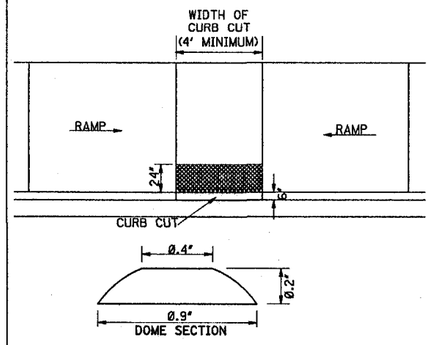
(1) N 1069268.20
E 2355968.39

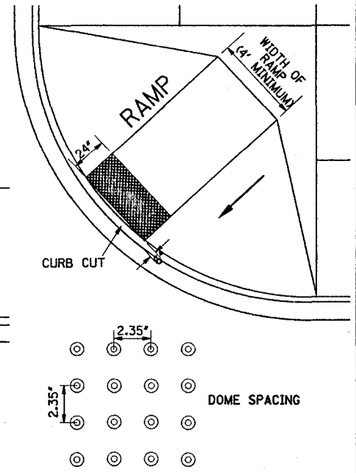
(2) N 1069282.84
E 2355962.96

(3) N 1069286.74
E 2355972.09

(4) N 1069273.44
E 2355976.90



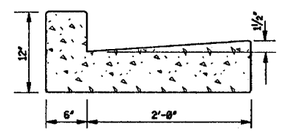




DETECTABLE WARNINGS (TRUNCATED DOMES) FOR VISION IMPAIRED PEDESTRIANS

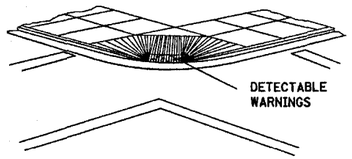
GENERAL NOTES:

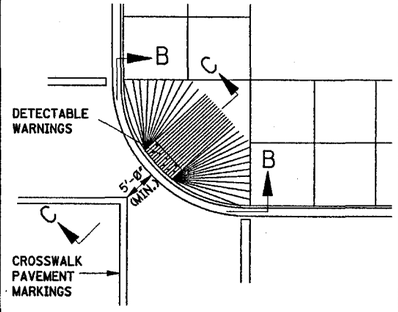
1. LOCATION AND TYPE OF CURB RAMP SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED.
2. THE CURB RAMP SHALL BE PAID FOR AS SIDEWALK.
3. THE THICKNESS OF THE CURB RAMP SHALL BE A MINIMUM OF 4".
4. ALL RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.
5. DETECTABLE WARNINGS ARE REQ'D ON CURB CUT RAMPS AT ALL STREET CROSSINGS AND AT SIGNALIZED DRIVEWAY CROSSINGS.
6. THERE SHALL BE A MINIMUM OF 70% CONTRAST IN LIGHT REFLECTANCE BETWEEN THE DETECTABLE WARNING AREA AND THE ADJOINING AREAS, OR THE DETECTABLE AREA SHALL BE "SAFETY YELLOW".



TYPE "3A MODIFIED"
DETAIL OF COMBINATION CURB & GUTTER

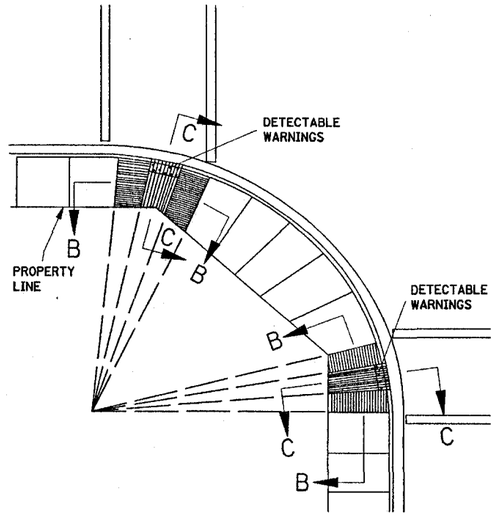
STANDARD CURB & GUTTER DETAIL



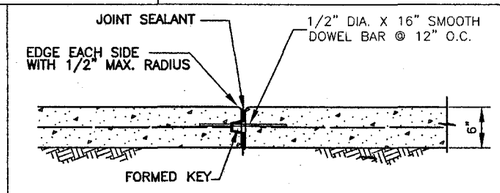


TYPE II

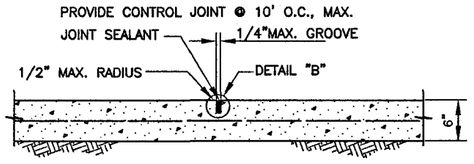
NOTE: IN NEW CONSTRUCTION, THE TYPE II DIAGONAL CURB RAMP SHALL ONLY BE USED IF OTHER CURB RAMP TYPES AS SHOWN ON THIS SHEET ARE NOT PRACTICAL FOR THE LOCATION.

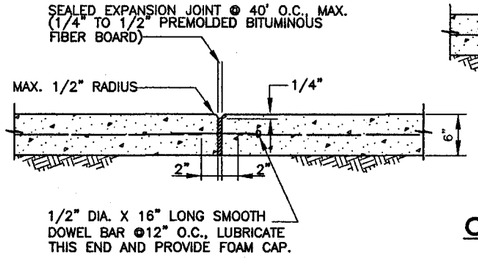


TYPE III



CONSTRUCTION JOINT DETAIL
NOT TO SCALE



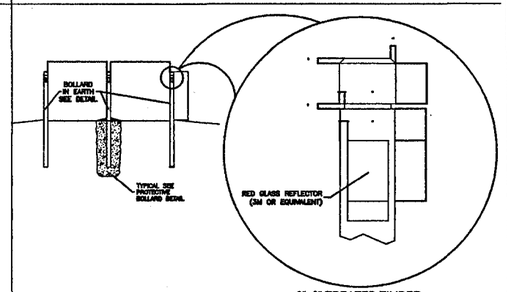


EXPANSION JOINT DETAIL

THE WIDTH (W) AND DEPTH (D) OF THE JOINT SEALANT MATERIAL SHALL BE AS INDICATED BY THE JOINT SEALANT MANUFACTURER AS THE OPTIMUM DIMENSIONS FOR THE SEALANT USED.

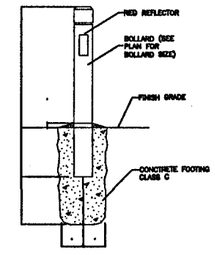
CONTROL JOINT DETAIL
NOT TO SCALE

NOTE:
ALL CONCRETE PAVEMENT SHALL BE REINF. W/ 1 1/2" LONG GRADED COLLATED, FIBRILLATED POLYPROPYLENE FIBERS

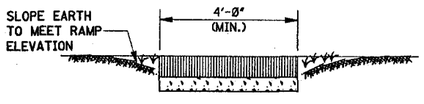


6"x6" TREATED TIMBER
BOLLARD TOP DETAIL
SCALE: N.T.S.

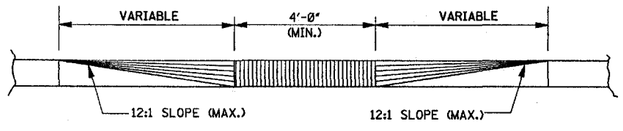
STANDARD BOLLARD DETAIL
N.T.S.



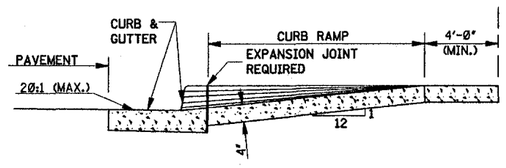
TYPICAL PROTECTIVE BOLLARD
SCALE: N.T.S.



SECTION A–A



SECTION B–B



SECTION C–C

MISCELLANEOUS DETAILS

PROJECT NO.: WEIN T08-019
STEED AND SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

WAGGONER ENGINEERING, INC.
Consulting Engineers - Jackson, Mississippi

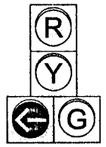
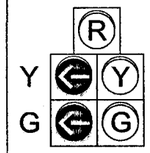
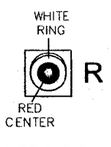
WORKING NUMBER: MSD-1

DRAWN BY: S.W. DATE: 8-20-08
REVIEWED BY: S.W. SCALE: 1"=30'

SHEET NUMBER: 5

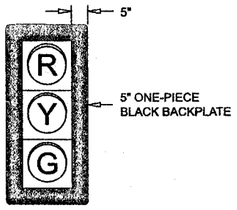
PROJECT NO.
T08-019

DETAIL OF TYPICAL TRAFFIC SIGNAL HEADS

TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6	TYPE 7	TYPE 8
					 COUNTDOWN TYPE LED		 SUPPLEMENTAL RED INDICATION

NOTES:
1. ALL SIGNAL HEADS SHALL BE BLACK IN COLOR UNLESS OTHERWISE NOTED ON THE PLANS.
2. ALL SIGNAL HEADS SHALL BE L.E.D. LENSES UNLESS OTHERWISE NOTED ON THE PLANS. TYPE "A" SIGNAL HEAD IS TO BE OPTICALLY PROGRAMMED
3. LETTER "R" ON HEAD TYPES MEANS RIGHT TURN ARROW(S).
4. TYPE 6 SIGNAL HEAD SHALL BE FURNISHED WITH R10-3e SIGN & PEDESTRIAN PUSHBUTTON (PELCO # SE 2039 WITH SE 1013 OR EQUAL). TYPE 6 SIGNAL HEAD SYMBOLS/NUMBERS SHALL BE FULLY ILLUMINATED (NO OUTLINE SYMBOLS ALLOWED).
5. TYPE 7 SIGNAL HEAD SHALL BE FURNISHED WITH R10-12 SIGN WHEN INDICATED ON PLANS. TYPE 4 & 5 SIGNAL HEADS SHALL BE FURNISHED WITH R10-10L SIGNS.
6. FOR SPAN WIRE INSTALLATION, THE HOUSING FOR THE RED INDICATION OF A TYPE 7 HEAD SHALL BE ALUMINUM.

DETAIL OF TRAFFIC SIGNAL WITH BACKPLATE



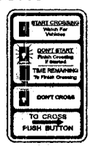
NOTE:
TYPE 1, 2, 3, 4, 5, & 7 SIGNAL HEADS SHALL INCLUDE BACKPLATES UNLESS OTHERWISE NOTED ON TRAFFIC SIGNAL INSTALLATION SHEETS.

DETAIL OF TYPICAL TRAFFIC SIGNAL SIGNS

R10-3a(R)
6" x 9"


R10-3b
6" x 9"


R10-3c
6" x 9"


R10-3e
9" x 15"

R10-10(L)
24" x 30"

R10-10(R)
24" x 30"

R10-11a
24'x 30"

R10-12
24" x 30"

R10-21
24" x 30"

NOTES:
1. ALUMINUM SIGN BLANKS ARE TO BE ALLOY 5052-H38 AND 0.08" (NOMINAL) THICK.
2. THE SIGNS SHALL BE SUPPLIED WITH MOUNTING BRACKETS AS REQUIRED.
3. NUMBER 12 PLATED JACK CHAINS SHALL BE ATTACHED TO THE BOTTOM OF ALL SPAN WIRE MOUNTED SIGNS.
4. CHAINS SHALL BE ATTACHED TO SIGN AND TETHER USING "S" HOOKS.
5. THE SIZE OF THE SIGN BLANK, LEGEND, BORDER AND THE COLOR OF THE BACKGROUND AND LEGEND IS TO CONFORM TO THE M.U.T.C.D.
6. THE BACKGROUND SHALL BE REFLECTORIZED USING TYPE IX SHEETING.

SIGNAL PLAN LEGEND

- SIGNAL HEAD REQUIRED / TYPE
- SIGN
- VEHICLE LOOP DETECTOR
- OR QUADRAPOLE VEHICLE LOOP DETECTOR
- VEHICLE LOOP DETECTOR NUMBER
- BASE MOUNTED CABINET FOR SIGNAL CONTROLLER
- POLE MOUNTED CABINET FOR SIGNAL CONTROLLER
- EXISTING POLE
- POLE REQUIRED
- NEW PEDESTAL POLE
- EXISTING PULLBOX
- PULLBOX REQUIRED (TYPE 1)
- PULLBOX REQUIRED (TYPE 2)
- EXISTING SIGNAL HEAD
- MAST ARM POLE REQUIRED
- MICROWAVE
- CAMERA
- OPTICAL DETECTOR UNIT
- CONDUIT
- ROLL PIPE
- LUMINAIRE
- RADIO INTERCONNECT ANTENNA

P.B.	PUSH BUTTON
S.C.	SHIELDED CABLE
POW	POWER CABLE
LUM	LUMINAIRE POWER CABLE
ODC	OPTICAL DETECTOR CABLE
4c	NUMBER OF CONDUCTORS
I.C.	INTERCONNECT CABLE

GENERAL NOTES

1. INTERCONNECT CABLE SHALL BE EITHER IMSA 40-2-1991 OR IMSA 40-4-1991 SIGNAL CABLE, STRANDED. AWG NUMBER AND NUMBER OF CONDUCTORS AS SHOWN ON PLANS.
2. SIGNAL SUPPLY CABLE SHALL BE IMSA 20-1-1991 SIGNAL CABLE, STRANDED. AWG NUMBER AND NUMBER OF CONDUCTORS AS SHOWN ON THE PLANS.
3. POWER SUPPLY CABLE SHALL THHN CABLE, STRANDED. AWG NUMBER AND NUMBER OF CONDUCTORS AS SHOWN ON PLANS.
4. DETECTOR SHIELDED CABLE SHALL BE IMSA 50-2-1991 SIGNAL CABLE, AWG #14 STRANDED COPPER CONDUCTORS, UNLESS OTHERWISE NOTED ON THE PLANS. FROM PULLBOX TO CONTROLLER.
5. POLES, SIGNAL HEADS, EQUIPMENT BOXES, PULLBOXES AND CONDUIT MAY BE VARIED SLIGHTLY TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER. HOWEVER, SIGNAL HEAD OR POLE LOCATIONS SHALL BE WITHIN REQUIREMENTS OUTLINED IN THE 2003 EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND HIGHWAY DESIGN AND OPERATIONAL PRACTICES RELATED TO HIGHWAY SAFETY.
6. POLES AND FOUNDATIONS OF EXISTING SIGNAL INSTALLATIONS SHALL BE CUT OFF 6" BELOW GROUND OR REMOVED AND AREA RESTORED TO MATCH ADJACENT SURFACE AS DIRECTED BY THE ENGINEER.
7. LOOP AMPLIFIERS SHALL BE REQUIRED AS SHOWN ON PLANS. WHERE TWO OR MORE LOOPS ARE CONNECTED TO THE SAME CHANNEL, THEY SHALL BE WIRED IN SERIES.
8. THE CONTRACTOR SHALL PROVIDE DESIGN CERTIFICATION AND CALCULATIONS AS OUTLINED IN SECTION 722.02 OF STANDARD SPECIFICATIONS. DESIGN STANDARD FOR MAST ARMS POLES SHALL BE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, USE FATIGUE CATEGORY II. DO NOT CONSIDER GALLOPING OR TRUCK FORCES. USE A 50 YEAR DESIGN LIFE. WIND AND ICE LOADS ARE VARIABLE BASED UPON MAPS IN THE 2001 AASHTO SPECIFICATION. USE UPSWEPT MAST ARMS.
9. DETERMINATION OF REQUIRED SIZES, LENGTHS AND GAUGES OF TYPE I, II, III AND IV STEEL POLES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IN ACCORDANCE WITH THE PLANS AND SECTION 722.02 OF THE STANDARD SPECIFICATIONS, UNLESS OTHERWISE SPECIFIED IN PLANS OR SPECIFICATIONS.
10. THE TOP OF THE STRAIN POLE FOUNDATION SHALL BE 6" ABOVE THE GROUND. THE CONTRACTOR SHALL PROVIDE POLES OF SUFFICIENT LENGTH PLUS 2 FEET TO PROVIDE REQUIRED VERTICAL CLEARANCE OF THE TRAFFIC SIGNAL HEADS WITHOUT EXTENDING THE FOUNDATION ABOVE THE GROUND LINE OF THE POINT WHERE THE POLE IS LOCATED, EVEN THOUGH THIS MAY BE BELOW THE FINISHED GRADE OF THE ROADWAY.
11. ALL STRAIN POLES AT AN INTERSECTION SHALL BE THE SAME DIAMETER AND UTILIZE THE SAME BOLT CIRCLE SPACING.
12. POLE AND BASE MOUNTED CABINET – GRADES SHALL BE ESTABLISHED TO *3" AS DIRECTED BY THE ENGINEER.
13. TRAFFIC SIGNAL CABINETS AND CONTROLLERS SHALL BE WIRED TO PROVIDE FOR ALL PHASES INCLUDING FUTURE PHASES IN ACCORDANCE WITH THE PHASE SEQUENCE DIAGRAM.
14. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED AND SALVAGED BY THE CONTRACTOR WITH THE COST TO BE ABSORBED. THE EXISTING POLES, CABINETS, CONTROLLERS, TRAFFIC SIGNAL HEADS, AND OTHER ITEMS AS NOTED ON PLANS ARE TO BE STOCKPILED AS DIRECTED BY THE ENGINEER FOR PICKUP BY STATE FORCES OR AS NOTED ON PLANS. ALL OTHER SIGNAL EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
15. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ELECTRICAL SERVICE FROM THE POWER COMPANY SERVICE POINT TO THE TRAFFIC SIGNAL CONTROLLER. FOR SPAN WIRE INSTALLATION, POWER SHALL RUN FROM THE POWER COMPANY SERVICE POINT AERIAL TO THE SIGNAL POLE NEAREST THE CONTROLLER, COST TO BE ABSORBED. THE SERVICE SHALL THEN RUN TO THE CONTROLLER AS SHOWN ON THE PLANS. FOR MAST ARM INSTALLATION, POWER SHALL RUN FROM THE POWER COMPANY SERVICE POINT UNDERGROUND DIRECTLY TO CONTROLLER AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAKE APPLICATION WITH THE POWER COMPANY IN ADVANCE OF NEEDING THE SERVICE. INSTALLATION OF NEW SERVICE POLE (IF NEEDED) IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS COST ABSORBED.
16. IF IT IS NECESSARY TO RUN ELECTRIC SERVICE CABLE FROM ONE POLE TO ANOTHER, THE SERVICE CABLE SHALL BE LASHED TO A SEPARATE MESSENGER CABLE LOCATED 1 FOOT MIN. ABOVE THE SIGNAL CABLE.
17. VEHICLE LOOP ASSEMBLIES SHALL BE INSTALLED IN THE TOP LAYER OF BINDER OR EXISTING SURFACE BEFORE THE FINAL SURFACE COURSE IS APPLIED.
18. PEDESTRIAN PUSHBUTTONS AND SIGNS TO BE INCLUDED IN PAY ITEM FOR TYPE 6 HEADS AT NO ADDITIONAL COST. WHERE PUSHBUTTONS AND SIGNS ARE SHOWN ON PLANS WITHOUT A TYPE 6 HEAD, THEY SHALL BE INSTALLED WITH NO ADDITIONAL PAYMENT (ABSORBED ITEM). SIDE OF POLE LOCATIONS OF PUSHBUTTONS MAY BE FIELD ADJUSTED. PUSHBUTTONS TO BE PELCO # SE 2039 WITH SE 1013 (ISLOATOR WITH LED LATCH ASSEMBLY) OR EQUAL.
19. FIELD DRILL AND TAP EXISTING POLES WHERE PEDESTRIAN SIGNALS AND PUSHBUTTONS ARE REQUIRED ON PLANS. (ABSORBED ITEM).
20. REFER TO WORKING NUMBER TSD-5 "CONDUIT ENTRANCE DETAIL" WHEN NEW CONDUIT(S) ARE REQUIRED AT EXISTING SIGNAL POLES OR CONTROLLERS.
21. MESSENGER CABLE AND OTHER SUPPORTING DEVICES WHERE REQUIRED SHALL BE ABSORBED IN THE PAY ITEMS FOR ELECTRIC CABLE.
22. FOR PROTECTED/PERMITTED LEFT TURN PHASING, TYPE 7 OR 7A TRAFFIC SIGNAL HEADS (FIVE SECTION HEADS) SHALL OPERATE SUCH THAT THE CIRCULAR INDICATIONS DISPLAYED WILL BE IDENTICAL AND SIMULTANEOUS TO THE CIRCULAR INDICATIONS FOR THE ADJACENT THROUGH MOVEMENT SIGNAL HEADS; I.e. A CIRCULAR RED AND EITHER A GREEN ARROW OR YELLOW ARROW MAY BE DISPLAYED SIMULTANEOUSLY IN THE SAME FIVE SECTION HEAD.
23. CONTRACTOR RESPONSIBLE FOR PROVIDING TEMPORARY SIGNALS IF NECESSARY IS TO ACCOMODATE ROADWAY CONSTRUCTION AND WILL BE ABSORBED UNDER PAY ITEM 618-A, MAINTENANCE OF TRAFFIC.
24. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING FINAL INSPECTION MEETING WITH DISTRICT OFFICE, PROJECT OFFICE AND TRAFFIC ENGINEERING.

REVISION | BY | DATE

DETAIL OF TRAFFIC SIGNAL HEADS, TRAFFIC SIGNAL SIGNS, AND GENERAL NOTES

PROJECT NO.: T08-019
STEED & SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

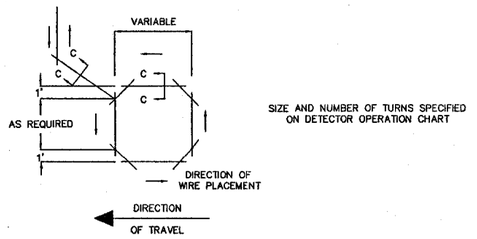
WORKING NUMBER
TSD-1

SHEET NUMBER
6

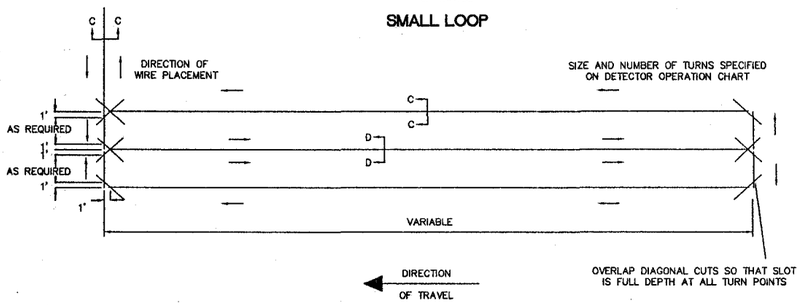
FILENAME: _____
DESIGN TEAM _____ CHECKED _____ DATE _____

PLAN
ROADWAY DESIGN SECTION, C.A.D.D. SECTION
MISSOURI DEPARTMENT OF TRANSPORTATION

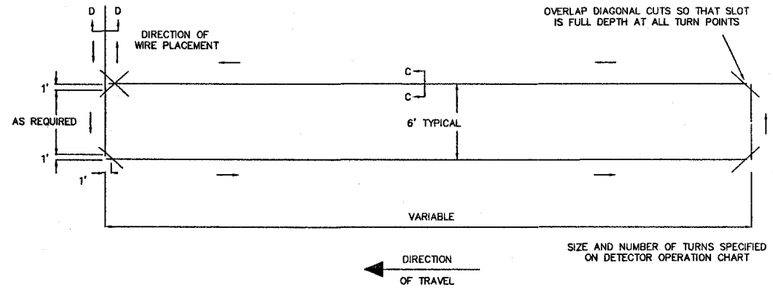
PROJECT NO.
T08-019



SMALL LOOP



QUADRAPOLE LOOP

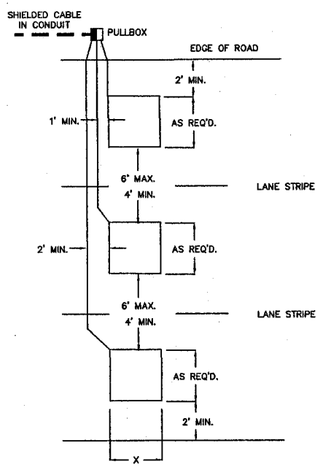


RECTANGULAR LOOP

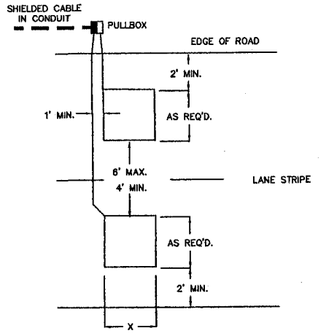
SAW CUT DIAGRAM

SAW SLOT AND LOOP WIRE INSTALLATION PROCEDURES

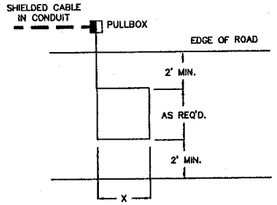
1. CONCRETE PAVEMENT JOINTS SHALL NOT BE USED FOR EITHER LOOP OR FEEDER WIRE. NO LOOPS ARE TO BE INSTALLED THROUGH, OVER, OR UNDER TRANSVERSE CONCRETE JOINTS IN CONCRETE PAVEMENT. NO MANHOLES, INLETS, VALVES, ETC. MAY BE LOCATED WITHIN A LOOP. IF JOINTS OR MANHOLES ARE ENCOUNTERED, THE LOCATION OF THE LOOP MAY BE VARIED SLIGHTLY AS DIRECTED BY THE ENGINEER. IF THE JOINTS OR MANHOLES ARE UNAVOIDABLE, SMALLER LOOPS, THE SIZE TO BE DETERMINED BY THE ENGINEER, MAY BE USED INSTEAD OF ONE LARGER LOOP AND SHALL PROVIDE THE SAME AREA OF COVERAGE AS THE LARGE LOOP. THE SMALLER LOOPS USED TO REPLACE THE ONE LARGE LOOP MAY BE CONNECTED TO ONE DETECTOR AMPLIFIER.
2. WHEN A BEND OR CORNER IS REQUIRED THE SLOTS PRODUCING THE "WOULD-BE" RIGHT ANGLE SHALL NOT OVERLAP.
3. WHEN A BEND OR CORNER IS REQUIRED THE SLOTS PRODUCING THE ANGLES APPROXIMATELY 45° SHALL OVERLAP THE SLOTS IT CONNECTS. THIS IS TO INSURE FULL DEPTH OF SLOTS AT BENDS OR CORNERS.
4. ALL CORNERS OF THE LOOP SHALL BE CUT AT A 45° ANGLE AND HAVE A MINIMUM DIAGONAL LENGTH OF 16".
5. SAW CUTS IN THE PAVEMENT SHALL BE FLUSHED WITH CLEAN WATER UNDER SUFFICIENT PRESSURE TO REMOVE MUD AND SMALL DEBRIS. SAW CUTS SHALL THEN BE DRIED AND CLEANED OF ALL DEBRIS BEFORE INSTALLING THE LOOP WIRE.
6. ONE CONTINUOUS, UNBROKEN LENGTH OF WIRE SHALL BE USED TO FORM A LOOP OF THE NUMBER OF TURNS AS SPECIFIED IN THE PLANS. THE CONTINUOUS RUN SHALL BE FROM THE PULLBOX/CONDULET INCLUDING THE LOOP AND RETURN.
7. ALL WIRE SHALL BE PUSHED INTO THE SAW CUT WITH WOOD STICKS TO INSURE THE INSULATION IS NOT DAMAGED. THE USE OF METAL TOOLS IS NOT PERMITTED.
8. SPLICE BETWEEN LEAD-IN AND SHIELDED CABLE REQUIRED IN PULLBOX OR CONDULET. ALL SPLICES IN THE LEAD-IN WIRE SHALL BE MADE ONLY IN THE PULLBOX OR CONDULET. ALL SPLICES MUST BE CAREFULLY MADE TO INSURE CONSTANT LOW RESISTANCE AND MUST BE INSULATED IN SUCH A MANNER THAT UNDER THE LOCAL PREVAILING CONDITIONS THE INSTALLATION MAINTAINS A RESISTANCE TO GROUND OF NOT LESS THAN 5 MEGOHMS. TO INSURE CONSISTENT LOW RESISTANCE CONNECTIONS, THE SPLICES SHALL BE SOLDERED WITH RESIN FILLED SOLDER AND WATERPROOFED BY SHRINK WRAP OR BY OTHER METHOD APPROVED BY THE ENGINEER. OPEN FLAME SOLDER SHALL NOT BE PERMITTED.
9. WHERE THE WIRES LEAVE THE LOOP, EACH PAIR OF LEAD-IN WIRES MUST BE TWISTED TOGETHER WITH A MINIMUM OF THREE TWISTS PER FOOT.
10. IF THE LEAD-IN IS TAKEN OVERHEAD THE WIRE MUST BE PROTECTED BY CONDUIT (TYPE I) FROM UNDERGROUND TO SPAN.
11. WHEN A PULLBOX IS NOT USED IN THE LEAD-IN (THE WIRE WHICH CONNECTS THE SENSING LOOP TO THE DETECTOR AMPLIFIER), THE LOOP WIRE SHALL BE TWISTED A MINIMUM OF THREE TURNS PER FOOT FROM THE LOOP TO THE DETECTOR AMPLIFIER.



THREE LANE COVERAGE

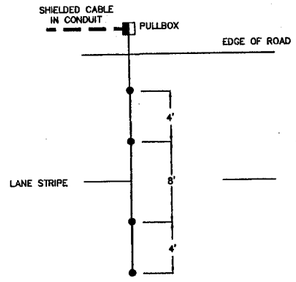


TWO LANE COVERAGE



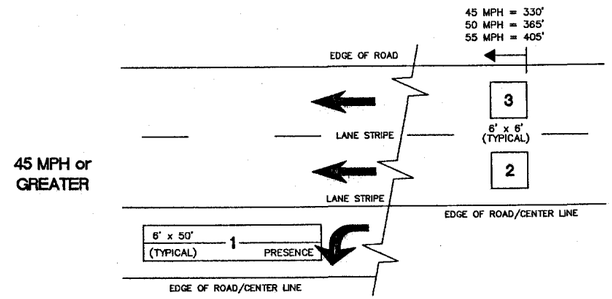
ONE LANE COVERAGE

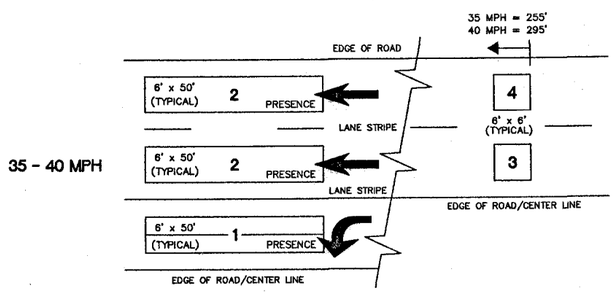
"X" DIMENSION SPECIFIED ON PLANS

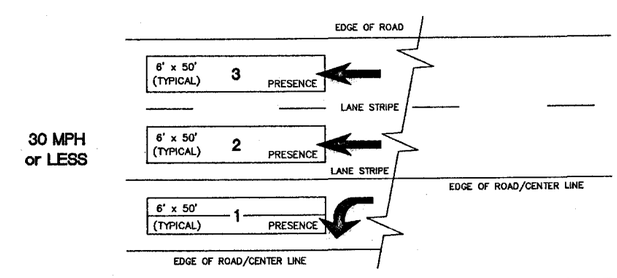


PROBE DETECTOR

TYPICAL LOOP DETECTOR LANE COVERAGE DIAGRAM





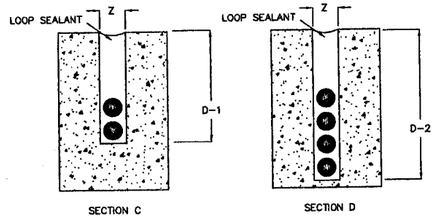


TYPICAL LOOP DETECTOR PLACEMENT DIAGRAM

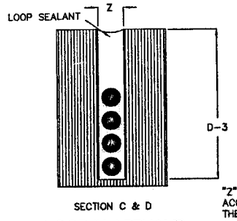
3 = CHANNEL NUMBER

AMP 1-#2, AMP 2-#4, AMP 3-#6, AMP 4-#8

MPH IS BASED ON SPEED LIMIT
ALL DISTANCES FROM STOPLINE



LOOP IN CONCRETE



LOOP IN ASPHALT

DEPTH	NUMBER OF WIRES				
	1	2	3	4	6
D-1	1.5"	2.0"	2.0"	2.5"	3.0"
D-2	-	2.0"	2.0"	2.5"	3.0"
D-3	2.0"	2.0"	2.5"	3.0"	3.0"

"Z" DIMENSION SHALL BE WIDE ENOUGH TO ACCOMMODATE LOOP WIRE WITHOUT CHAFING THE INSULATION (5/16" NOMINAL).

SAW SLOT DETAIL

REVISION
DATE

STANDARD SIGNAL DETAILS, VEHICLE LOOP DETECTOR ASSEMBLY

PROJECT NO.: WE# T08-019
STEED & SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

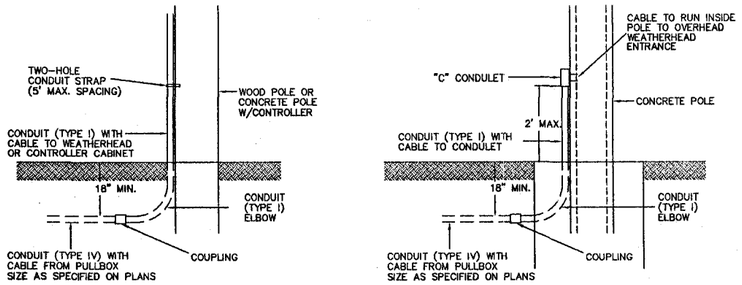
WAGGONER ENGINEERING, INC.
Consulting Engineers - Jackson, MS

WORKING NUMBER
TSD-2

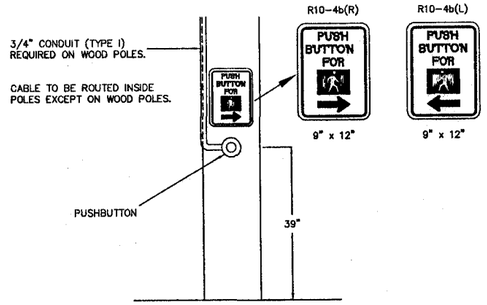
DRAWN BY: _____ DATE 08/20/08
REVIEWED BY: _____ SCALE 1"=20'

SHEET NUMBER
7

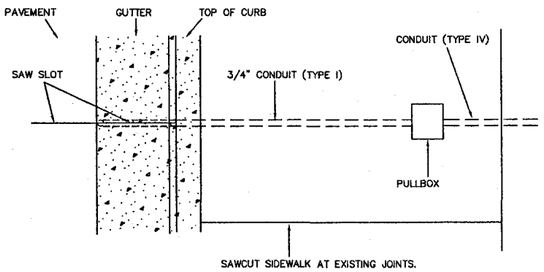
PROJECT NO.
T08-019

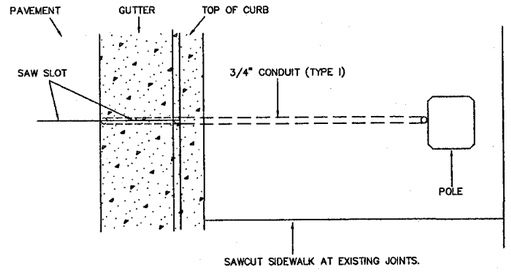


CONDUIT DETAIL AT POLES

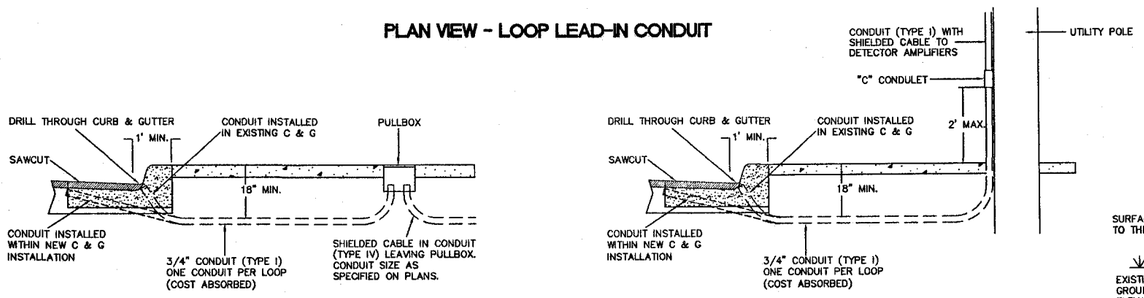


PEDESTRIAN PUSH BUTTON AND SIGN INSTALLATION DETAIL

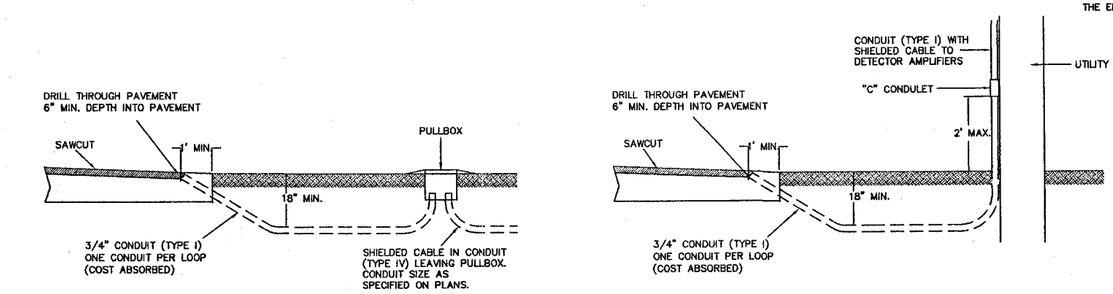




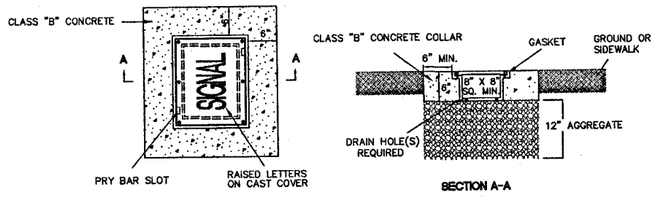
PLAN VIEW - LOOP LEAD-IN CONDUIT



TYPICAL SECTION IN GUTTER AND SIDEWALK

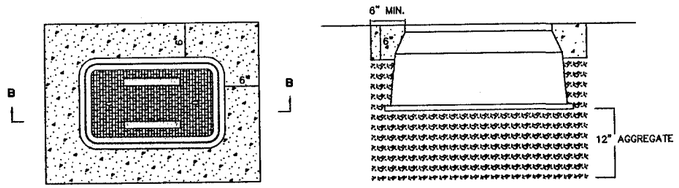


TYPICAL SECTION IN EARTH



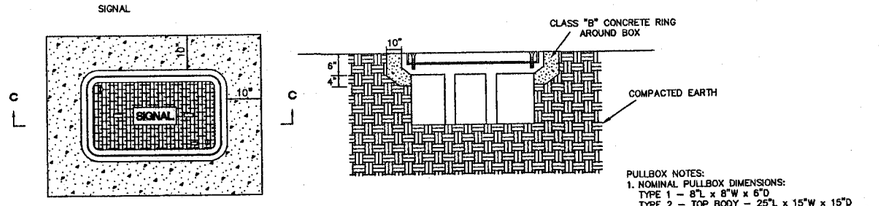
TWO-PIECE PULLBOX (TYPE 1)

CAST IRON, CAST ALUMINUM, WELDED ALUMINUM, OR APPROVED EQUAL



TWO-PIECE PULLBOX (TYPE 2)

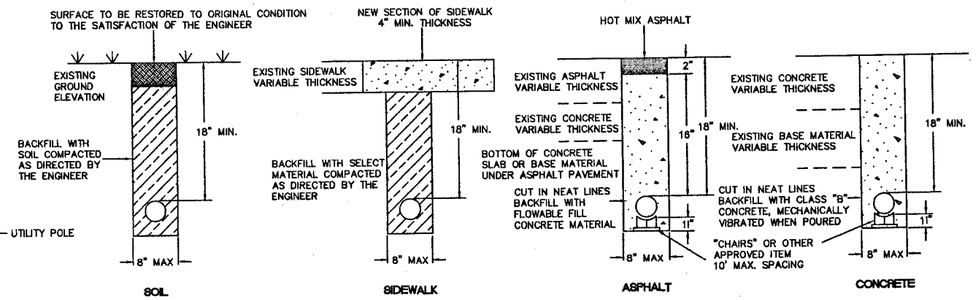
PRECAST CLASS "B" CONCRETE, HIGH DENSITY POLYETHYLENE, COMPOSOLITE, OR APPROVED EQUAL



TWO-PIECE PULLBOX (TYPE 3)

COMPOSOLITE OR APPROVED EQUAL

PULLBOX NOTES:
1. NOMINAL PULLBOX DIMENSIONS:
   TYPE 1 – 8"L x 8"W x 6"D
   TYPE 2 – TOP BODY – 25"L x 15"W x 15"D
   BOTTOM BODY (INSIDE) – 29"L x 18"W
2. GRAVEL, 12" DEEP, IS REQUIRED UNDER PULLBOXES FOR DRAINAGE.
3. CONCRETE COLLAR, 6"W x 6"D, IS REQUIRED FOR PULLBOXES PLACED IN SOIL.
4. TRAFFIC SIGNAL, TRAFFIC OR SIGNAL LEGEND REQUIRED.
5. COVERS SHALL BOLT DOWN.



CONDUIT TRENCHING DETAIL

NOTES :

1. CONDUIT TO BE SEALED WITH DUCT SEALER ONCE CABLE IS INSTALLED.
2. SAWCUT SIDEWALK AT EXISTING JOINTS AND REPLACE ENTIRE SECTION TO MATCH EXISTING MATERIAL. WHEN NEW SIDEWALK IS BEING CONSTRUCTED, CONDUIT, PULLBOX, AND POLE ARE TO BE INSTALLED BEFORE SIDEWALK IS POURED.
3. TYPE I CONDUIT IS RIGID STEEL; TYPE IV CONDUIT IS PVC.
4. CONDUIT MAY BE TRENCHED OR JACKED. ELECTRICAL SUBCONTRACTOR SHALL COORDINATE CONDUIT INSTALLATION WORK UNDER ROADWAY WITH ROADWAY CONSTRUCTION PHASING IN ORDER TO MINIMIZE JACKING.

STANDARD SIGNAL DETAILS, CONDUIT, PULLBOX, TRENCHING & PEDESTRIAN PUSHBUTTON

REVISION
DATE

PROJECT NO.: WEI# T08-019
STEED & SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

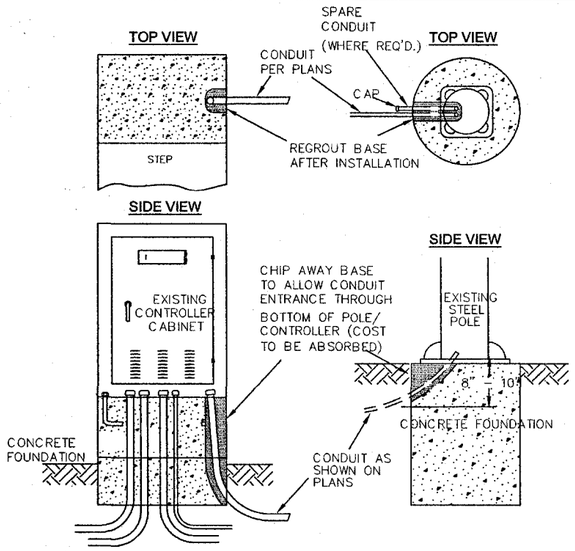
WAGGONER ENGINEERING, INC.
Consulting Engineers – Jackson, MS

WORKING NUMBER: TSD-3

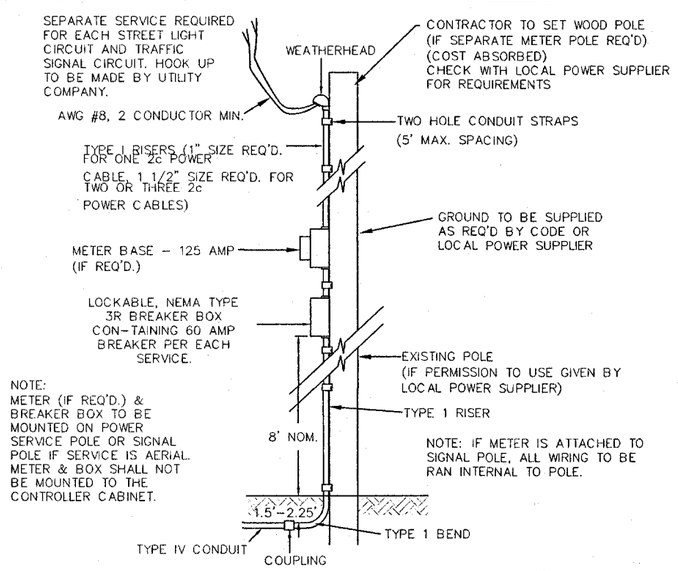
DRAWN BY: _____ DATE 08/20/08
REVIEWED BY: _____ SCALE 1"=20'

SHEET NUMBER: 8

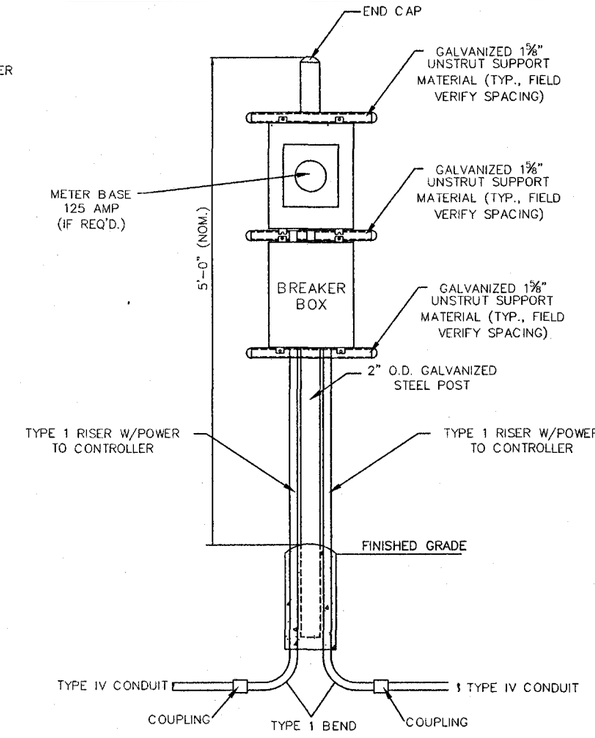
PROJECT NO.
T08-019

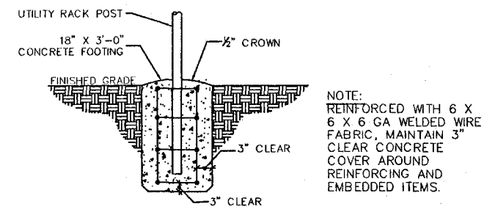


CONDUIT ENTRANCE DETAIL (EXISTING CABINET OR POLE)



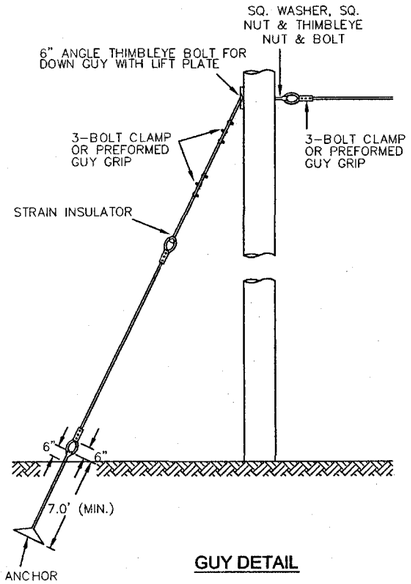
POWER SERVICE DETAIL





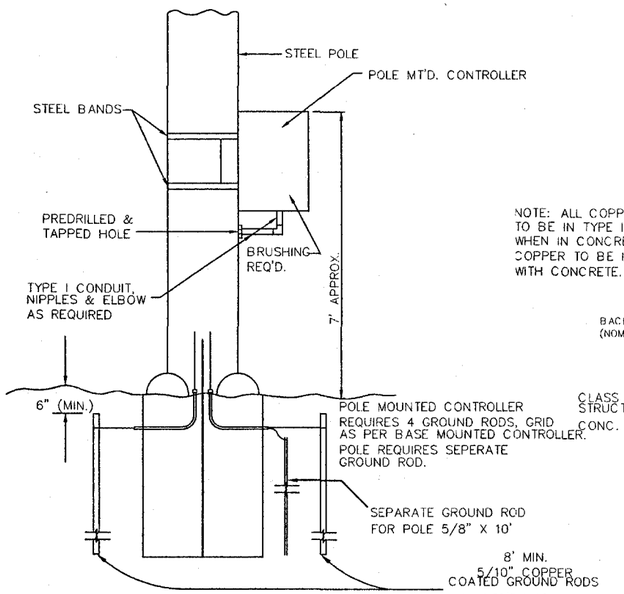
NOTE: REINFORCED WITH 6 X 6 X 6 GA WELDED WIRE FABRIC, MAINTAIN 3" CLEAR CONCRETE COVER AROUND REINFORCING AND EMBEDDED ITEMS.

PANEL FOOTING

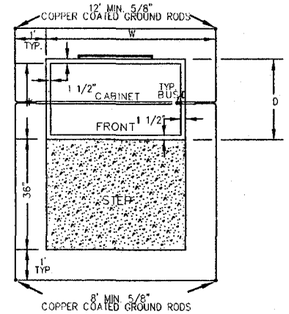


GUY DETAIL

NOTES:
1. THE ANCHOR ROD IS 6" DIAMETER.
2. DIFFERENT ANCHORS ARE: CHANCE 8–WAY EXPANSION ANCHORS OR 3 HELICAL 203mm OR AS NECESSARY FOR ADEQUATE HOLD.
3. ANCHORS ARE TO BE 15' BEHIND THE HOLE IN LINE WITH THE SPAN, RESTRICTION TO THIS WILL BE PROPERTY LINES OR OBSTRUCTIONS.
4. ALL ATTACHMENT FITTINGS SHALL BE HOT DIP GALVANIZED UNLESS STATED OTHERWISE.
5. GUYS TO BE INSTALLED AS REQUIRED, DETER– MINED BY THE ENGINEER (COST ABSORBED).



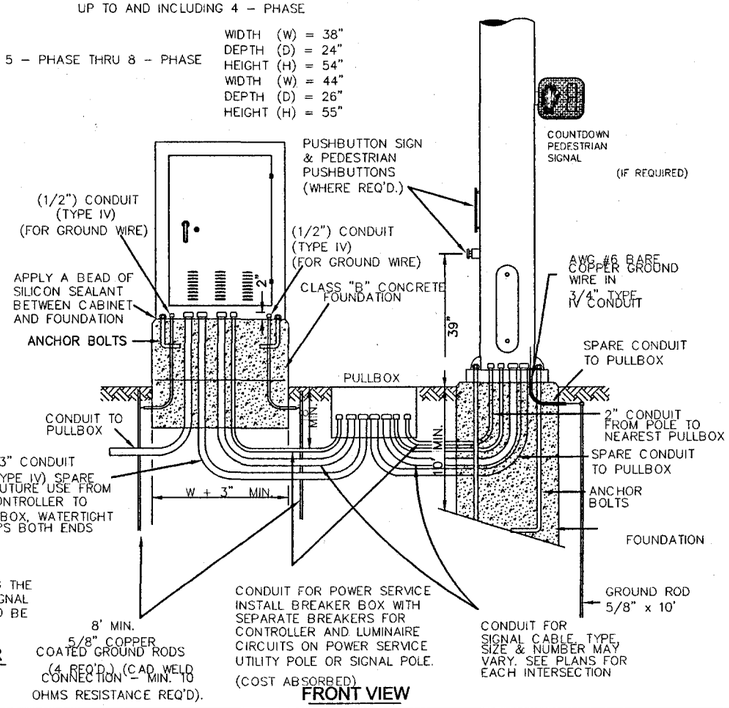
TYPICAL DETAIL FOR POLE MOUNTED CONTROLLER
NOT TO SCALE



NOTE: ALL COPPER FOR GROUND TO BE IN TYPE IV CONDUIT WHEN IN CONCRETE. NO BARE COPPER TO BE IN CONTACT WITH CONCRETE.

NOTE: THE BASE MOUNTED CABINET IS TO BE SITUATED IN THE OPTIMUM POSITION FOR VIEWING THE CONTROLLER OPERATION AND THE ON STREET SIGNAL DISPLAYS SIMULTANEOUSLY. THIS POSITION IS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

TYPICAL DETAIL OF BASE FOR CONTROLLER EQUIPMENT CABINET
NOT TO SCALE



FRONT VIEW

BY	REVISION	DATE

TYPICAL DETAILS OF CONTROLLER CABINET MOUNTINGS, TYPE 1 POLE ATTACHMENTS AND MISCELLANEOUS DETAILS

PROJECT NO.: T08-019
STEED & SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

WORKING NUMBER: TSD-5
SHEET NUMBER: 9

FILENAME: _____
DESIGN TEAM _____ CHECKED _____ DATE _____

PLAN ROADWAY DESIGN DESIGN C.A.D.D. SECTION MATERIALS DIVISION DEPARTMENT OF TRANSPORTATION

PROJECT NO.
T08-019

STREET NAME AND SIGN NOTES

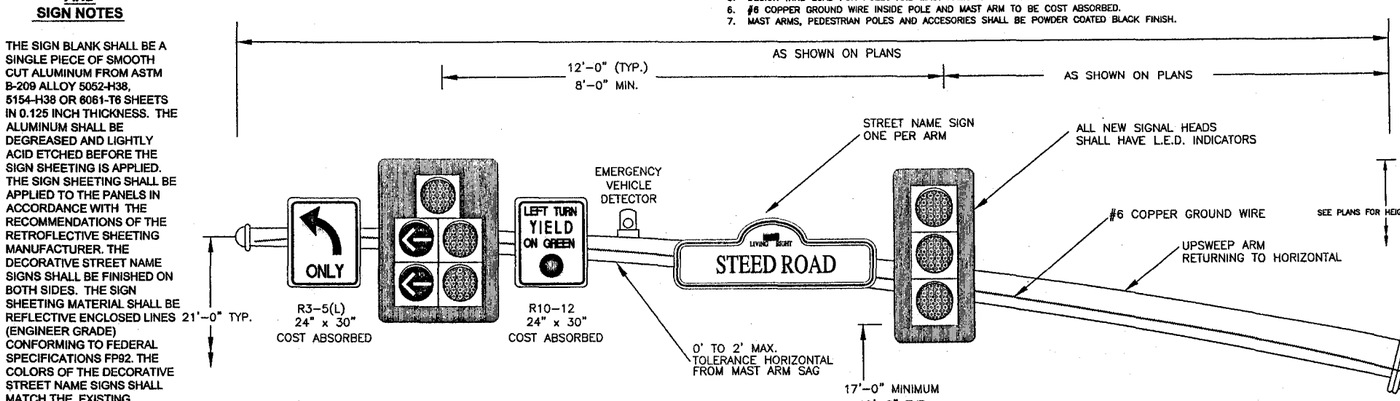
THE SIGN BLANK SHALL BE A SINGLE PIECE OF SMOOTH CUT ALUMINUM FROM ASTM B-209 ALLOY 5052-H38, 5154-H38 OR 6061-T6 SHEETS IN 0.125 INCH THICKNESS. THE ALUMINUM SHALL BE DEGREASED AND LIGHTLY ACID ETCHED BEFORE THE SIGN SHEETING IS APPLIED. THE SIGN SHEETING SHALL BE APPLIED TO THE PANELS IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE RETROFLECTIVE SHEETING MANUFACTURER. THE DECORATIVE STREET NAME SIGNS SHALL BE FINISHED ON BOTH SIDES. THE SIGN SHEETING MATERIAL SHALL BE REFLECTIVE ENCLOSED LINES (ENGINEER GRADE) CONFORMING TO FEDERAL SPECIFICATIONS FP92. THE COLORS OF THE DECORATIVE STREET NAME SIGNS SHALL MATCH THE EXISTING DECORATIVE STREET NAME SIGNS.

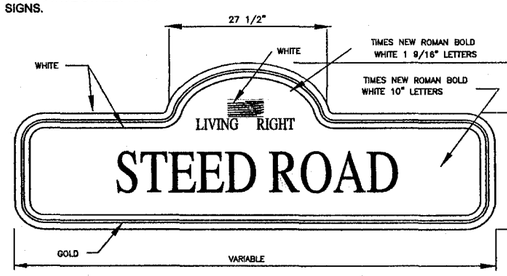
MAST ARM NOTES

1. WIRE ENTRANCE TO MAST ARM WILL BE FIELD DRILLED TO CORRESPOND TO THE LOCATION OF THE SIGNAL HEADS WHEN ALIGNED IN THE FIELD.
2. ALL SIGNAL HEADS TO BE LED & BLACK IN COLOR.
3. RED SECTION INDICATIONS TO BE APPROXIMATELY SAME HEIGHT.
4. EXACT DIMENSIONS AND LOCATIONS OF ANCHOR BOLT TO BE SUPPLIED BY THE POLE MANUFACTURER.
5. DESIGN WIND LOAD FOR POLES AND MAST ARMS IS 70 MPH.
6. #6 COPPER GROUND WIRE INSIDE POLE AND MAST ARM TO BE COST ABSORBED.
7. MAST ARMS, PEDESTRIAN POLES AND ACCESORIES SHALL BE POWDER COATED BLACK FINISH.

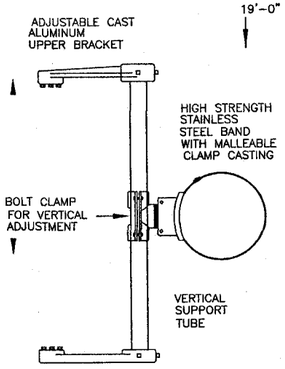
LUMINAIRE NOTES

1. LUMINAIRE AND PHOTOELECTRIC CONTROL 250 WATT H.P.S. LIGHT FIXTURE WITH 250 WATT LAMPS AND PHOTO CELL TO BE PROVIDED BY THE CONTRACTOR. (COST ABSORBED)
2. LUMINAIRE CABLE FROM POLE TO FIXTURE SHALL BE COST ABSORBED.

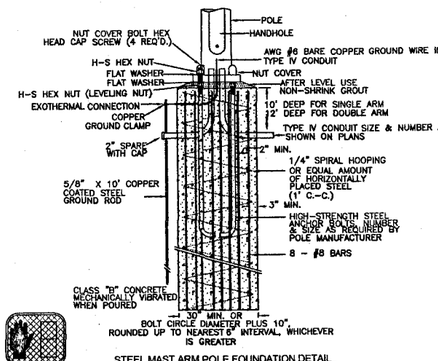




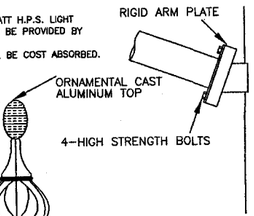
STREET NAME SIGNS
(TYPICAL)

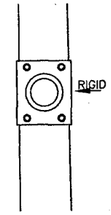


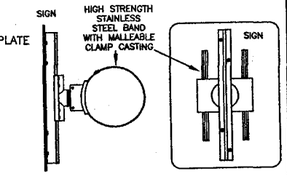
SIGNAL MOUNTING BRACKET (TYPICAL)
SCALE: N.T.S.



STEEL MAST ARM POLE FOUNDATION DETAIL
SCALE: N.T.S.

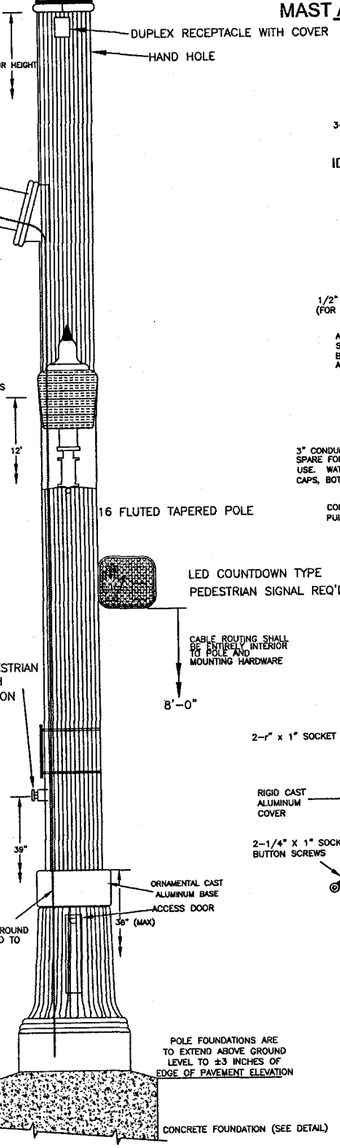


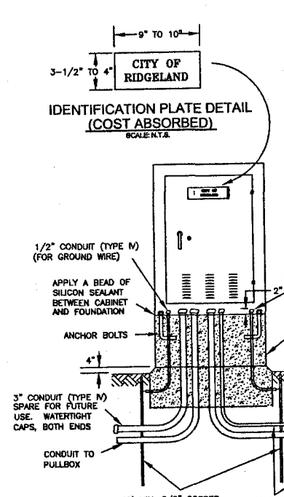




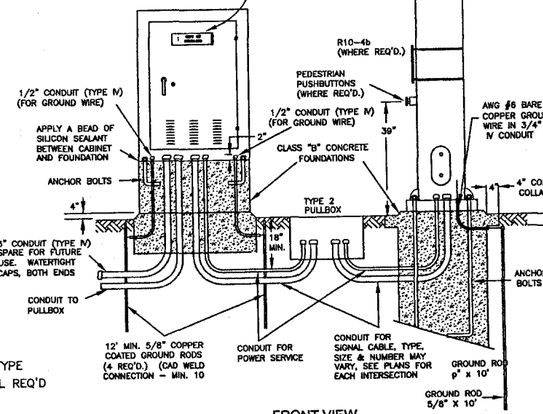
MAST ARM ATTACHMENT
SCALE: N.T.S.

MAST ARM SIGN BRACKET (TYPICAL)
SCALE: N.T.S.

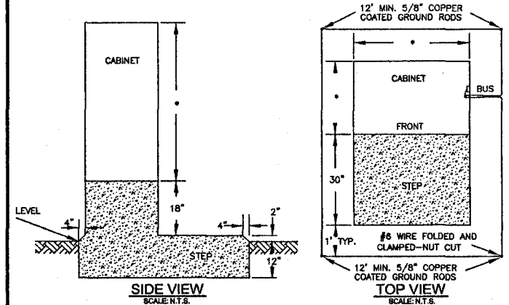




IDENTIFICATION PLATE DETAIL (COST ABSORBED)
SCALE: N.T.S.



FRONT VIEW
SCALE: N.T.S.

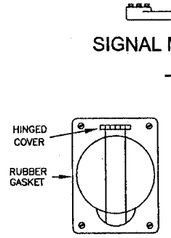


SIDE VIEW
SCALE: N.T.S.

TOP VIEW
SCALE: N.T.S.

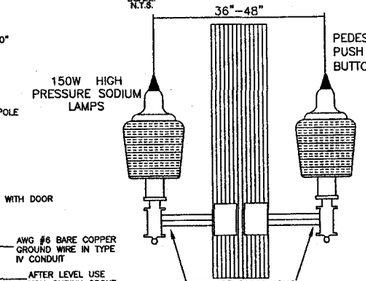
CONTROLLER BASE DETAIL

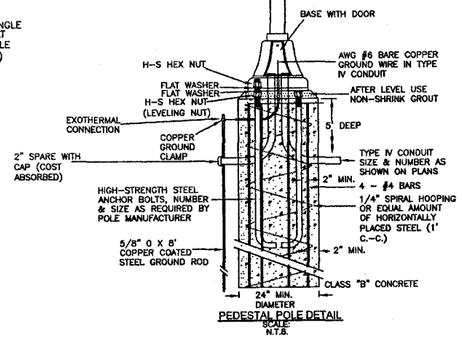
* CABINET DIMENSIONS TO MEET SIGNAL CABINET MANUFACTURER'S SPECIFICATIONS.
  NOMINAL DIMENSIONS: 8-PHASE - D=28", W=44", H=55"
  4-PHASE - D=17", W=30", H=52"



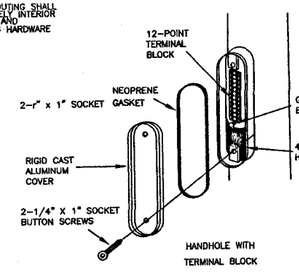
OUTLET BOX WITH SINGLE 15 AMP - 125 VOLT POLARIZED RECEPTACLE (GROUNDING TYPE)

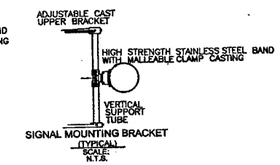
OUTLET
SCALE: N.T.S.





PEDESTAL POLE DETAIL
SCALE: N.T.S.





SIGNAL MOUNTING BRACKET (TYPICAL)
SCALE: N.T.S.

GENERAL FOUNDATION NOTES

1. EXACT DIMENSIONS AND LOCATIONS OF ANCHOR BOLTS TO BE SUPPLIED BY THE MANUFACTURER. ANY FOUNDATION FAILING TO MEET THESE DIMENSIONS WILL BE REJECTED.
2. TYPE IV CONDUIT TO BE RUN INTERNALLY FOR CONCRETE AND STEEL POLES; TYPE I CONDUIT RISERS REQUIRED FOR WOOD POLES.
3. DESIGN WIND LOAD FOR POLES SHALL BE 70 MPH.
4. FOUNDATIONS TO BE CLASS "B" CONCRETE, MECHANICALLY VIBRATED WHEN POURING.
5. MINIMUM STEEL POLE FOUNDATION SHALL BE 30" DIA. X 10' DEEP.
6. #6 COPPER GROUND WIRE AND 5/8" DIA. COPPER GROUND ROD REQ'D. FOR ALL POLE FOUNDATIONS. (COST ABSORBED).

BY	REVISION	DATE

MAST ARM AND PEDESTAL POLE DETAILS FOR TRAFFIC SIGNAL INSTALLATION

PROJECT NO.: T08-019
STEED & SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

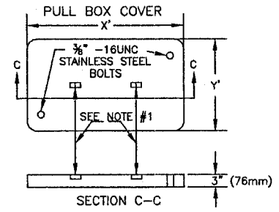
FILENAME:
DESIGN TEAM CHECKED DATE

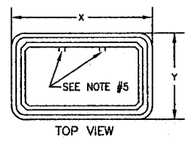
WORKING NUMBER
TSD-6

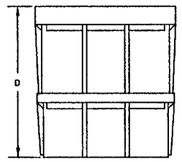
SHEET NUMBER
10

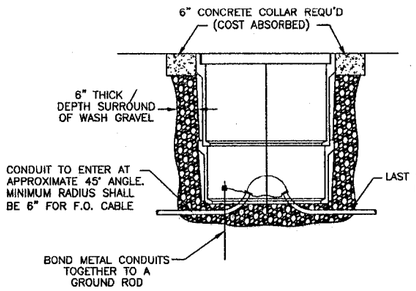
PLAN ROADWAY DESIGN DIVISION CLAUDE PATTON ASSISTANT ADMINISTRATOR OF TRANSPORTATION

PROJECT NO.
T08-019









TYPE	X	Y	D	LOGO
4 (24 in. x 36 in.)	37.6 in.	26 in.	18 in.	FIBER OPTIC
5 (30 in. x 48 in.)	49.6 in.	32 in.	18 in.	FIBER OPTIC

TYPE 5 FIBER OPTIC PULLBOXES ARE TO BE USED WHEN TRUNK SPLICING IS REQUIRED IN THE PULLBOX.

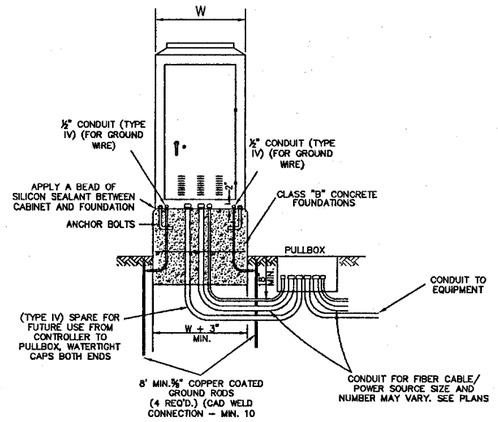
TYPE 4 FIBER OPTIC PULLBOXES ARE TO BE USED WHEN NO TRUNK SPLICING IS REQUIRED.

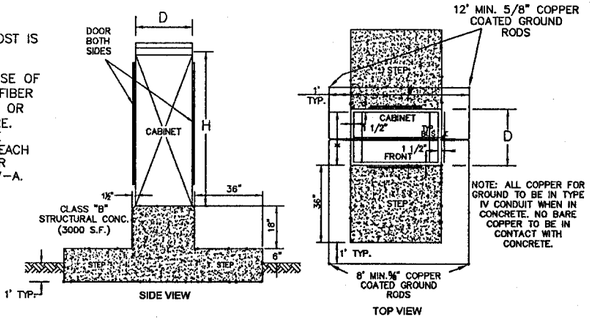
NOTES:
1. NOTCHES SHALL BE PROVIDED FOR REMOVING THE COVER.
2. COVER TO HAVE ROUGHENED TOP SURFACE.
3. THE LOGO "FIBER OPTIC" IS TO BE INSCRIBED ON TOP OF THE COVER.
4. ASSEMBLY SHALL BE RATED FOR A MINIMUM STATIC LOAD OF 15,000lbs OVER A 10"X10" AREA AND PASS MINIMUM STATIC TEST LOAD OF 22,000lbs.
5. INSTALL FOUR SS STRUTS 1.5" X 1.5" X 11" 3M 2178 SPLICE CASE FOR FIBER OPTIC TYPE "5" PULLBOX (COST ABSORBED).
6. EXISTING CONDUIT TO BE CUT AND COUPLED TO NEW LARGE RADIUS BENDS AS REQUIRED (COST ABSORBED).

FIBER OPTIC PULLBOX DETAILS
NOT TO SCALE

FIBER OPTIC GENERAL NOTES

1. PAYMENT FOR FIBER OPTIC CABLE, POWER CABLE AND CONDUIT SHALL BE BASED ON HORIZONTAL MEASUREMENTS, WITH NO EXTRA PAY FOR ANY VERTICAL RUNS.
2. ALL FIBER SPLICES REQUIRED TO CONNECT TRUNK, DROP AND VIDEO CABLE TO NEW AND EXISTING EQUIPMENT SHALL NOT BE A SEPARATE PAY ITEM AND BE COST ABSORBED.
3. FIBER SUPPLIER/CONTRACTOR TO DECIDE WHERE TRUNK SPLICES TO BE LOCATED. MDOT TO APPROVE LOCATIONS PRIOR TO ORDERING FIBER CABLE.
4. UNDERGROUND AND STRUCTURE FIBER PULLBOXES INCLUDED BY THE CONTRACTOR FOR HIS CONVENIENCE, SHALL BE COST ABSORBED
5. ALL UNDERGROUND SPLICES IN PULL BOXES OR IN CABINETSTO CONTAIN SUFFICIENT SLACK FIBER TO PERFORM SPLICE IN MAINTENANCE VEHICLE. TYPE 4 PULLBOXES TO CONTAIN 50' OF ADDITIONAL SLACK OF F.O. CABLE, TYPE 5 PULLBOXES TO CONTAIN 100' OF ADDITIONAL SLACK OF F.O. CABLE. (COST ABSORBED).
6. ROLL PIPE USED FOR F.O. CABLE TO BE A MINIMUM OF 6' DEEP.
7. CONDUIT TO BE SEALED WITH DUCT SEALER ONCE CABLE IS INSTALLED.
8. CONDUIT FOR FIBER OPTIC CABLE REQUIRED TO UTILIZE LARGE RADIUS BENDS (MINIMUM RADIUS 6"). NO ELBOW JOINTS ALLOWED.
9. WHEN INSTALLING NEW OR REPLACING OLD PULLBOXES, ALL REMOVAL AND REPLACEMENT OF SOD, SIDEWALK, ASPHALT, CONCRETE AND BACKFILL ARE AND CONSIDERED PART OF THE COST OF THE PULLBOX.
10. THE COST OF ALL MODIFICATIONS, ADJUSTMENTS, MATERIALS, MOUNTING HARDWARE, ETC. TO BE ABSORBED IN OTHER ITEMS, UNLESS A DIRECT PAY ITEM IS PROVIDED.
11. TRACER WIRE TO BE PLACED IN CONDUIT WITH FIBER OPTIC TRUNK. THE COST IS TO ABSORBED UNDER THE COST OF THE CONDUIT.
12. AERIAL SLACK STORAGE FOR LASHED CABLE SHALL BE PROVIDED BY THE USE OF "SNO-SHOES" ATTACHED TO THE MESSENGER WIRE ALONG THE "TRUNK" FIBER LINE AT EACH SIGNALIZED INTERSECTION. STORAGE UNITS SHALL BE OF 10" OR 16" DESIGN, NON-CONDUCTIVE AND BE SUPPLIED WITH MOUNTING HARDWARE. UNITS SHALL BE 100% CARBON FILLED; UV LIGHT SHALL NOT DEGRADE THE IMPACT CHARACTERISTICS NOR WILL THE UNITS FADE FROM UV EXPOSURE. EACH AERIAL SLACK STORAGE UNIT WILL INCLUDE 100 FEET OF ADDITIONAL FIBER OPTIC CABLE. THIS ADDITIONAL CABLE WILL BE COST ABSORBED UNDER 657-A.



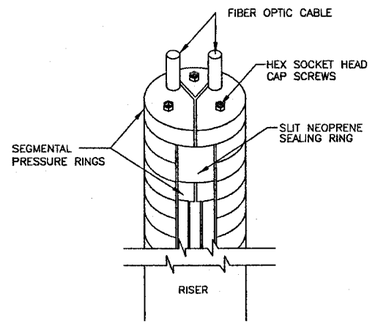


DIMENSIONS OF EQUIPMENT CABINETS (MIN.)

MODEL 332A		MODEL 336S	
WIDTH	(W) = 24.00"	WIDTH	(W) = 24.00"
DEPTH	(D) = 30.00"	DEPTH	(D) = 22.37"
HEIGHT	(H) = 54.00"	HEIGHT	(H) = 46.25"
WEIGHT	= 290 lbs	WEIGHT	= 188 lbs

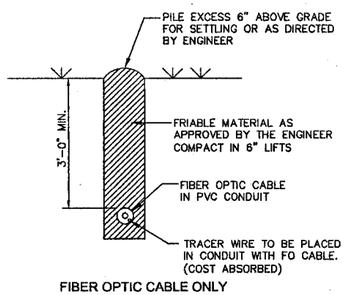
DIMENSIONS OF CABINETS TO BE VERIFIED PRIOR TO POURING FOUNDATION

TYPICAL DETAIL OF BASE FOR EQUIPMENT CABINET
NOT TO SCALE

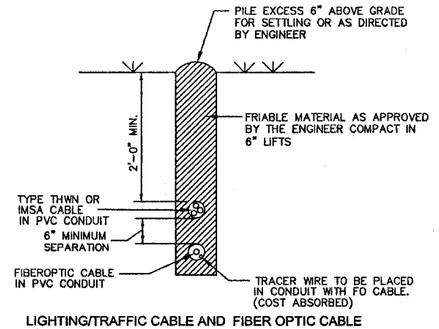


RISER SEALING BUSHING FOR FIBER OPTIC CABLE

NOTE: TOP OF BUSHING SHALL BE APPROXIMATELY 11" BELOW MESSENGER ATTACHMENT HEIGHT.



FIBER OPTIC CABLE ONLY



LIGHTING/TRAFFIC CABLE AND FIBER OPTIC CABLE

FIBER OPTIC CABLE TRENCHING/PLOWING DETAILS

REVISION	BY	DATE

FIBER OPTIC PULLBOX, TRENCHING, EQUIPMENT CABINET DETAILS AND GENERAL NOTES

PROJECT NO.: T08-019
STEED & SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

WORKING NUMBER
FO-1

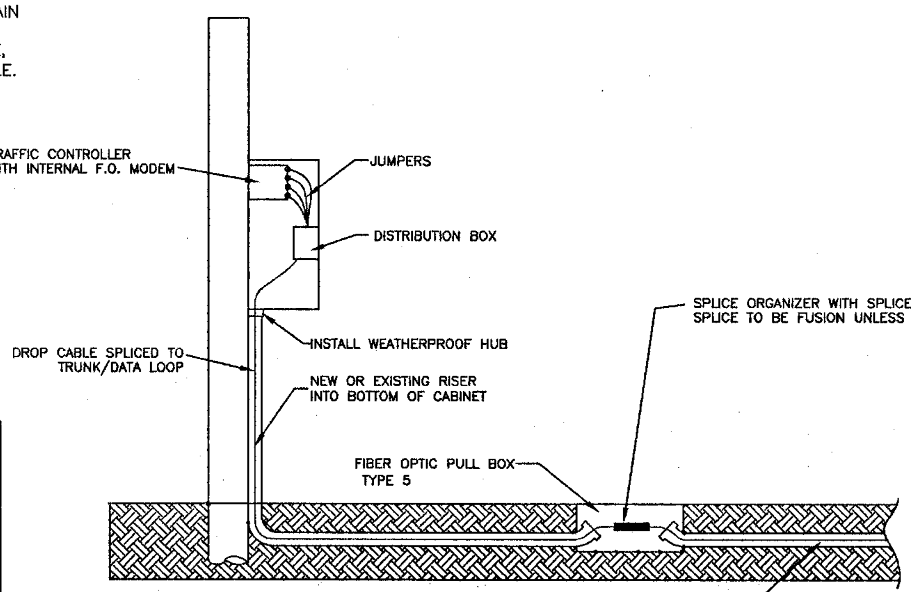
SHEET NUMBER
11

FILENAME:
DESIGN TEAM CHECKED DATE

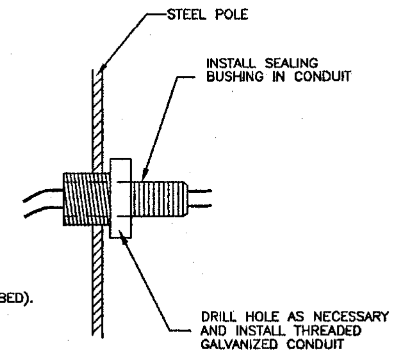
PLAN ROADWAY DESIGN, C.A.D.D. SECTION MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO. T08-019

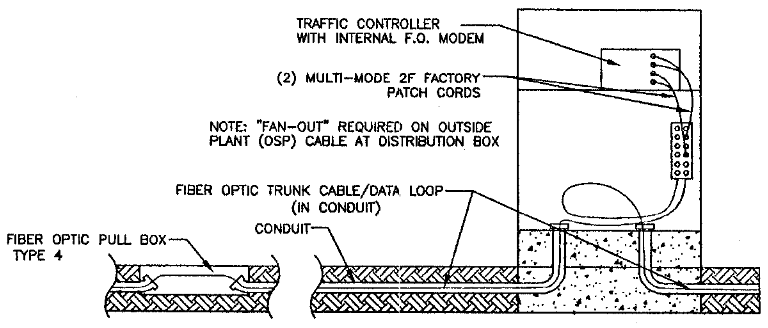
NOTE: ALL UNDERGROUND SPLICES IN PULL BOXES OR IN CABINETS TO CONTAIN SUFFICIENT SLACK FIBER TO PERFORM SPLICE IN MAINTENANCE VEHICLE.
TYPE 4 PULLBOXES TO CONTAIN 50' OF ADDITIONAL SLACK OF F.O. CABLE,
TYPE 5 PULLBOXES TO CONTAIN 100' OF ADDITIONAL SLACK OF F.O. CABLE.
(COST ABSORBED).



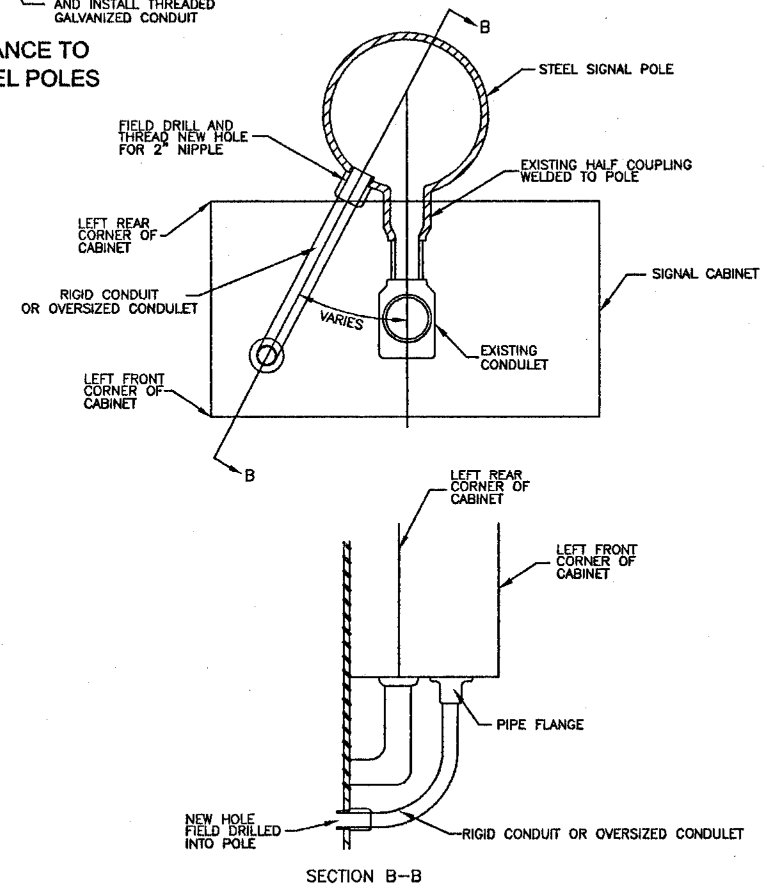
UNDERGROUND ENTRANCE FOR EMBEDDED STEEL, CONCRETE, OR WOOD POLE INTO POLE MOUNTED CABINET (EXTERNAL SPLICE)



FIBER ENTRANCE TO EXISTING STEEL POLES

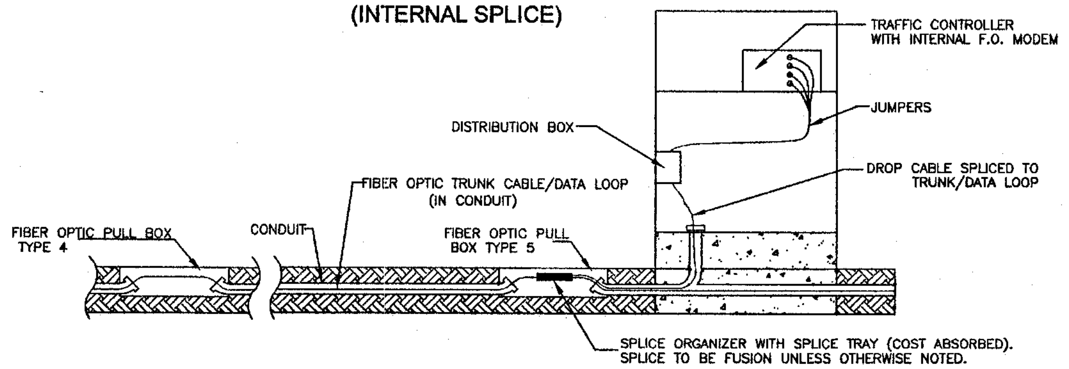


UNDERGROUND ENTRANCE INTO BASE MOUNTED CABINET (INTERNAL SPLICE)

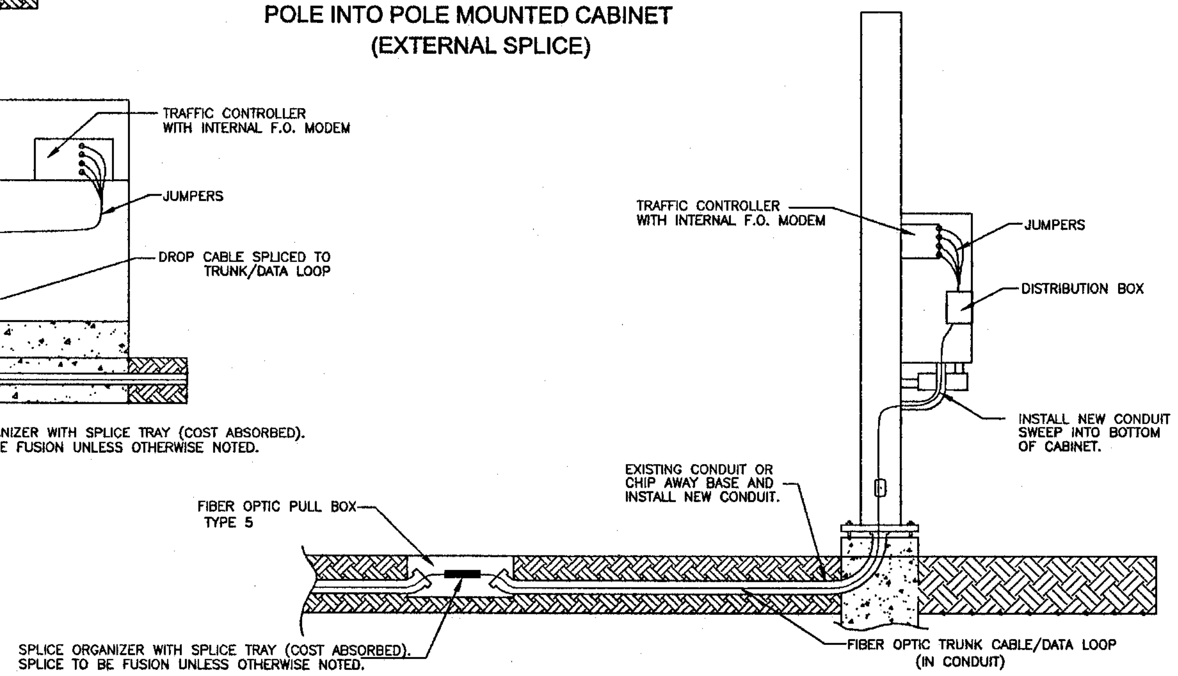


DETAIL OF NEW CONDUIT SWEEP INTO BOTTOM OF POLE MOUNTED CABINET ON STEEL POLE

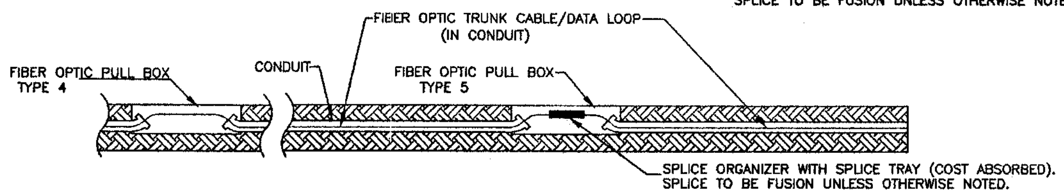
NOTE: ALL MODIFICATIONS, ADJUSTMENTS, MATERIALS, ETC. TO BE COST ABSORBED



UNDERGROUND ENTRANCE INTO BASE MOUNTED CABINET (EXTERNAL SPLICE)



UNDERGROUND ENTRANCE FOR STEEL POLE INTO POLE MOUNTED CABINET (EXTERNAL SPLICE)



TYPICAL UNDERGROUND SPLICE

REVISION	DATE	BY

UNDERGROUND FIBER OPTIC ENTRANCE DETAILS

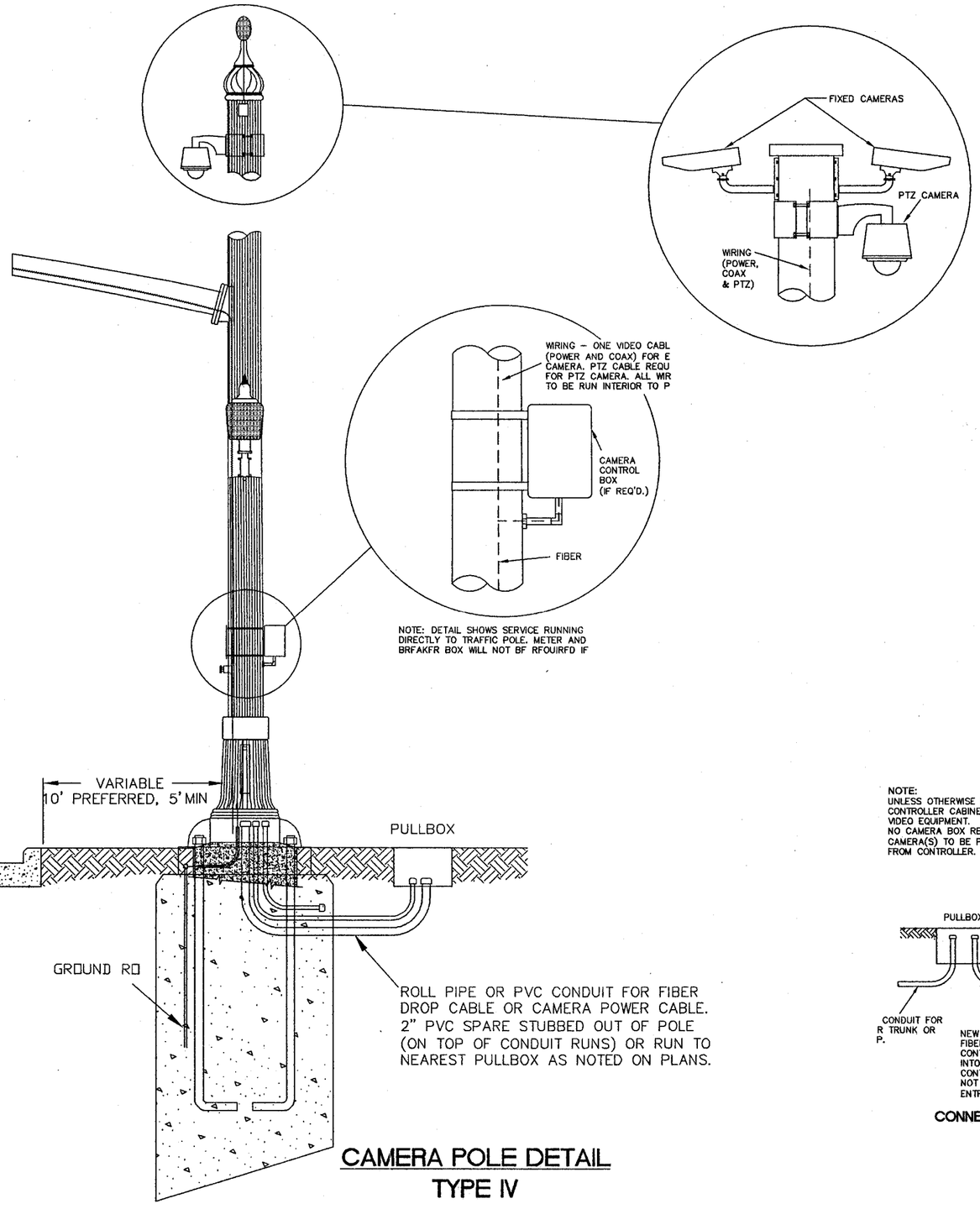
PROJECT NO.: T08-019
STEED & SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

FILENAME:
DESIGN TEAM ______ CHECKED ______ DATE ______

WORKING NUMBER FO-2

SHEET NUMBER 12

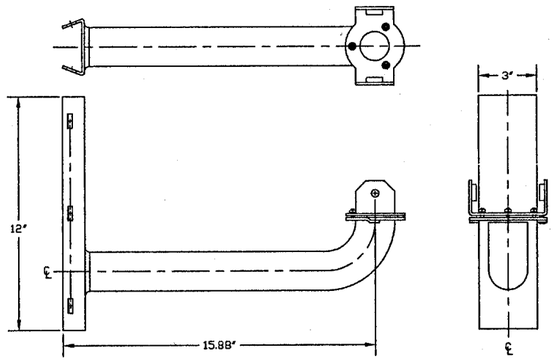
PROJECT NO.
T08-019



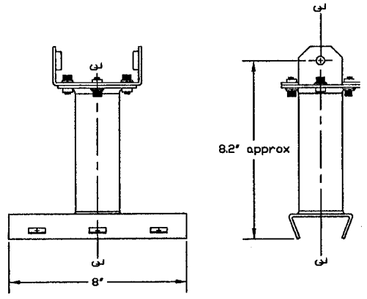
CAMERA POLE DETAIL
TYPE IV

GENERAL NOTES:

1. CAMERA POLE TO BE TYPE I STRAIN POLE OR TYPE IV MAST ARM POLE. SEE PLANS FOR TYPE AND HEIGHT.
2. SEE PLANS FOR FINISH ON POLES (GALVANIZED OR POWDER COATED).
3. SEE PLANS FOR TYPE AND NUMBER OF CAMERAS REQUIRED.
4. SEE PLANS IF CAMERA BOX WILL BE REQUIRED.
4. SEE PLANS IF POWER SERVICE METER WILL BE REQUIRED AND IF IT WILL BE MOUNTED ON SIGNAL POLE.
5. ALL WIRING TO BE ROUTED INSIDE OF POLE.
6. PAY ITEMS FOR CAMERAS INCLUDE ALL EQUIPMENT NECESSARY FOR A COMPLETE AND OPERABLE UNIT. CAMERA BOXES WHEN REQUIRED (AS NOTED ON PLANS) ARE TO BE INCLUDED AND NOT A SEPARATE PAY ITEM. VIDEO CABLE (NOT A SEPARATE PAY ITEM) TO SUPPLY BOTH POWER AND VIDEO FEED. PTZ CABLE (NOT A SEPARATE PAY ITEM) TO SUPPLY CONTROL FOR PTZ CAMERAS.

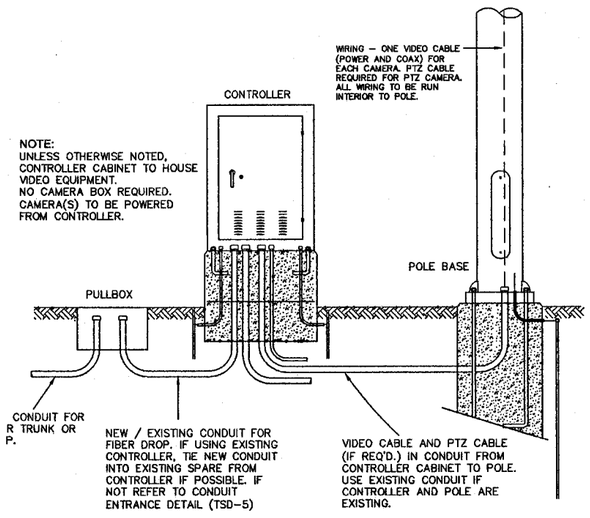


VERTICAL SURFACE MOUNTING BRACKET



HORIZONTAL MOUNTING BRACKET

TYPICAL CAMERA MOUNTING BRACKETS



CONNECTIONS AT CONTROLLER WITHOUT USING CAMERA BOX

DATE	REVISION	BY

FIBER OPTIC CAMERA POLE DETAILS

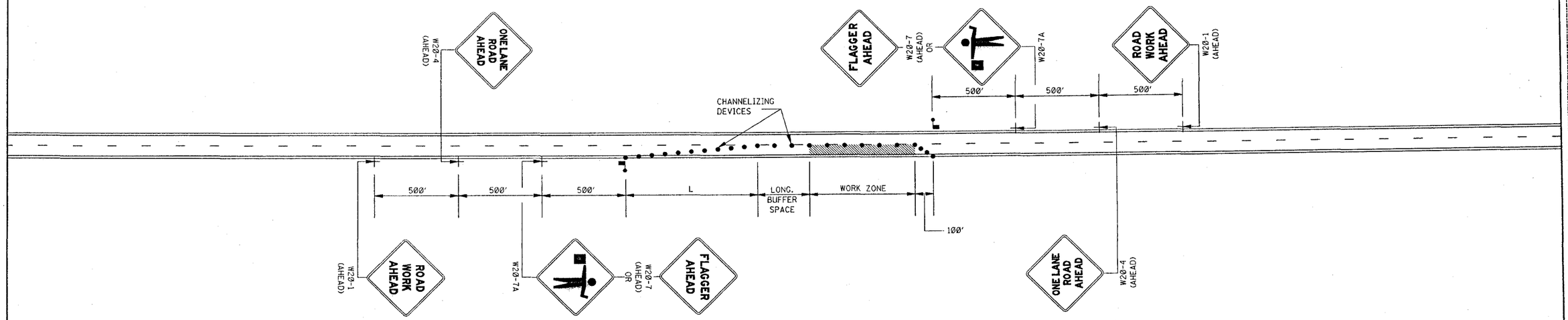
PROJECT NO.: T08-019
STEED & SUNNYBROOK
TRAFFIC SIGNAL INSTALLATION

WORKING NUMBER
FO-3

SHEET NUMBER
13

FILENAME:
DESIGN TEAM CHECKED DATE

STATE	PROJECT NO.
MISS.	



LEGEND

- FLAGGER
- CHANNELIZING DEVICES

GENERAL NOTES:

1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE:

POSTED SPEED AND/OR DESIGN SPEED	MAXIMUM CHANNELIZING DEVICE SPACING (ft)		MINIMUM LONGITUDINAL BUFFER SPACE (ft)	TAPER † RATES
	TAPER	ALONG LANE LINE & WORK ZONE		
mph				
≤40	40	80	170	27:1
45	45	90	220	45:1
50	50	100	280	50:1
55	55	110	335	55:1
60	60	120	415	60:1
65	65	130	485	65:1
70	70	140	575	70:1

† NOTE: TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATIONS:
L = WS FOR SPEEDS OF 45 mph OR GREATER
$L = WS^2/60$ FOR SPEEDS OF 40 mph OR LESS
WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET
S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MILES PER HOUR

2. ALL CHANNELIZING DEVICES SHALL BE A MINIMUM OF 24" IN HEIGHT.
3. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK IS TO BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.
4. DIAMOND SHAPED TRAFFIC CONTROL SIGNS SHALL BE A MINIMUM OF 48" x 48".
5. WHEN THERE IS NO EXISTING HAZARD OR AT THE END OF THE WORK DAY, ALL SIGNS SHALL BE COVERED OR REMOVED AND ALL CHANNELIZING DEVICES SHALL BE MOVED TO THE SHOULDER EDGE.
6. WHERE THE WORK ZONE IS STATIONARY, THE W20-7 (500 FT.) SIGN OR THE W20-7A SIGN TOGETHER WITH THE W20-7 (500 FT.) SUPPLEMENTAL PLATE SHOULD BE USED TO INDICATE THE DISTANCE TO THE FLAGGER.

REVISION	BY	DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

TRAFFIC CONTROL PLAN WITH FLAGGER
(ONE-LANE CLOSURE OF TWO-WAY TRAFFIC)

ENGLISH

WORKING NUMBER: TCP-1

ISSUE DATE: OCTOBER 1, 1998

SHEET NUMBER: 14