ROAD NO.	JOB NO.	SHEET NO.	SHEETS TOTAL
N/A	350102	1	4

COUNTY OF SAN LUIS OBISPO, CALIFORNIA
PUBLIC WORKS DEPARTMENT
UTILITIES DIVISION

PLANS FOR THE CONSTRUCTION OF OKLAHOMA AVENUE SEWER LINE REPLACEMENT COUNTY OPERATIONS CENTER CONTRACT NO. 350102 2013

To Be Supplemented By State Standard Plans Dated May 2006.

APPROVED: July 10 ,20 13

Dave Flynn

DEPUTY DIRECTOR OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER DAVID JOHN FLYNN No. C 43854 Exp. 6/30/15 CIVIL STATE OF CALIFORNIA

APPROVED: 7/10 ,20 13

UTILITIES DIVISION MANAGER

REGISTERED PROFESSIONAL ENGINEER DENNIS R. BENEDICT Exp. 3.31.2015 No. 37892 CIVIL STATE OF CALIFORNIA

INDEX OF SHEETS

SHEET NO.	1	TITLE SHEET
SHEET NO.	2	OKLAHOMA AVE PLAN AND PROFILE
SHEET NO.	3	SEWER DETAILS
SHEET NO.	4	SEWER DETAILS

GENERAL NOTES

1. A COPY OF THE GEOTECHNICAL INVESTIGATION REPORTS PREPARED BY GSI, ARE INCLUDED IN THE CONTRACT ATTACHMENTS.

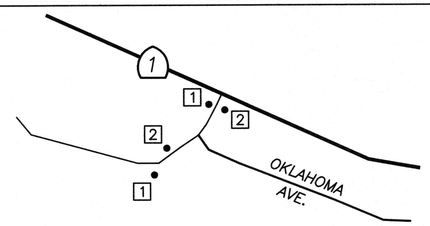
2. CONTRACTOR IS RESPONSIBLE FOR HAVING UTILITIES LOCATED PRIOR TO COMMENCING WORK. CALL USA AT 1-800-227-2600

BASIS OF BEARING:

BASIS OF BEARING IS BASED ON A LINE SIGHTED FROM POINT CP#1 TO POINT CP#2. SAID BEARING IS N68°00'09" W (SEE SHEET 2)

BENCHMARK:

PROJECT BENCHMARK FOR THIS TOPOGRAPHIC SURVEY IS A CHISELED SQUARE FOUND AT THE SOUTH WEST RETURN ENTRANCE OF THE ANIMAL CONTROL BUILDING. 20' RIGHT OF CONSTRUCTION CENTERLINE STA. 4+78 OKLAHOMA AVE. PER F.B. CAMP S.L.O. PG. 161 U.S.C. & G.S. DATUM ELEV. = 335.44'



LEGEND:

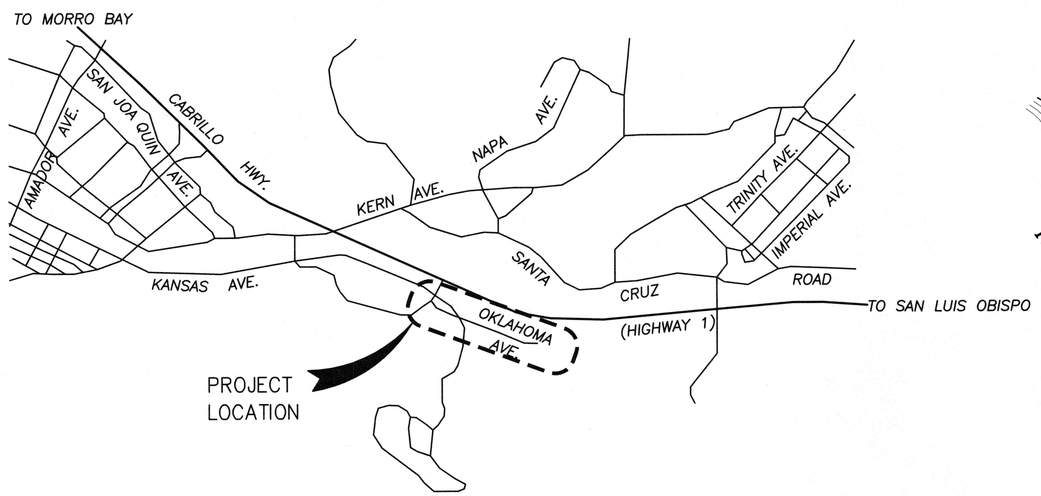
No.	Type	Size	Message	Quantity
1	W20-1	48"X48"	"ROAD WORK AHEAD"	2
2	G20-2	48"x18"	"END ROAD WORK"	2

NOTES:

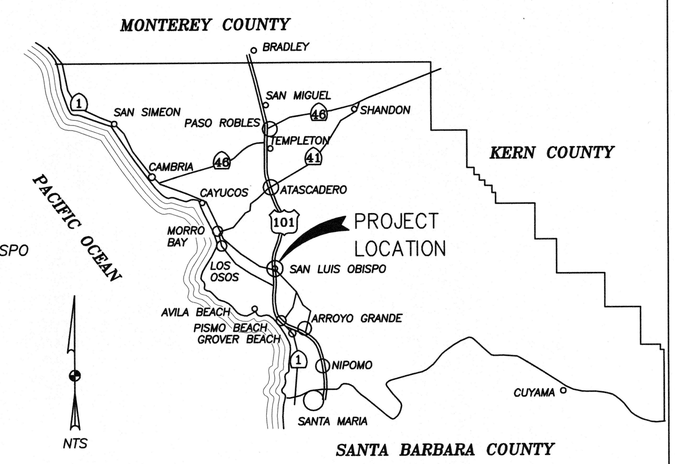
All Signs Shall Be Stationary Mounted on 4x4 Wood Posts, Unless Noted Otherwise or as directed by the Engineer.

All Construction Signs Shall be Placed Approximately 4' off the Edge of Roadway, the Exact Location and Position of Signs Shall be Determined by the Engineer.

CONSTRUCTION AREA SIGN PLAN



LOCATION MAP

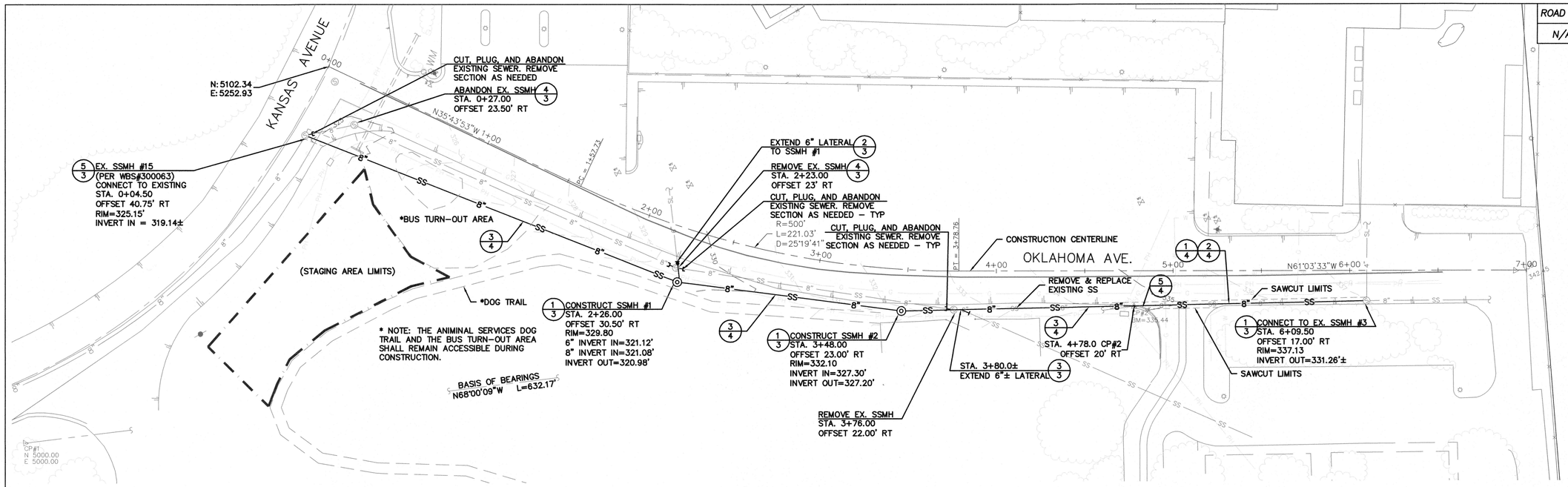


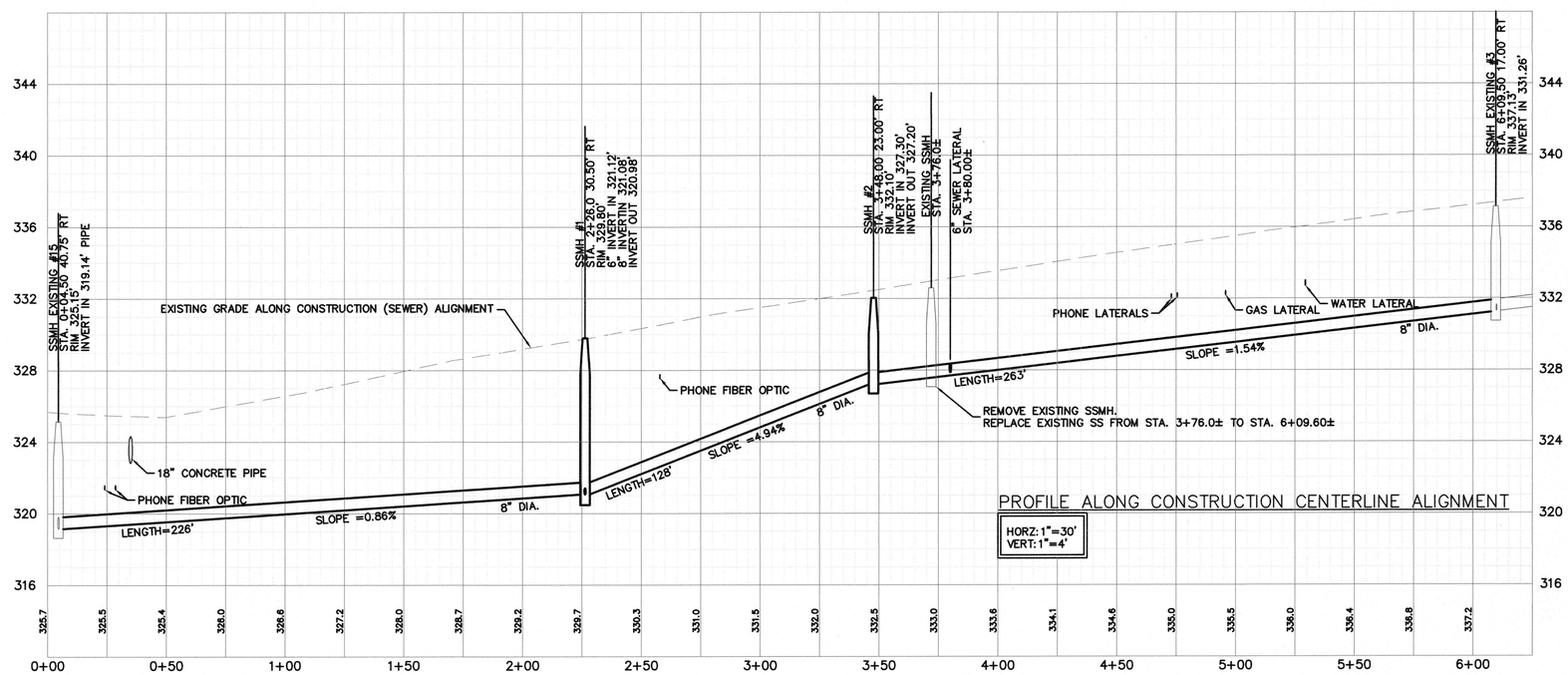
VICINITY MAP

REGISTERED PROFESSIONAL ENGINEER MARK K. DAVIS 7/8/13 PE. NO. 63477 CIVIL STATE OF CALIFORNIA

OKLAHOMA AVE SEWER LINE REPLACEMENT					
TITLE SHEET					
SAN LUIS OBISPO, CA.					
Designer	Date	Drawn By	Date	Design Engineer	Date
M DAVIS	7/2013	MD	7/2013	J WERST	7/2013

ROAD NO.	JOB NO.	SHEET NO.	SHEETS TOTAL
N/A	350102	2	4



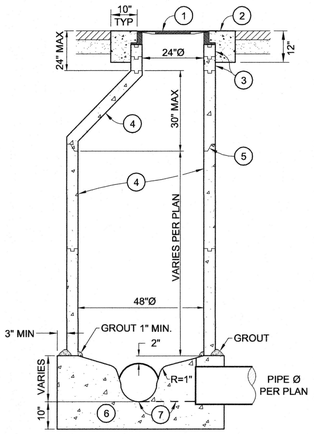


CALL BEFORE YOU DIG
USA
1800-227-2600

REGISTERED PROFESSIONAL ENGINEER
MARK K. DAVIS
7/18/13
PE. NO. 63477
CIVIL
STATE OF CALIFORNIA

OKLAHOMA AVE SEWER LINE REPLACEMENT					
OKLAHOMA AVE PLAN AND PROFILE					
SAN LUIS OBISPO, CA.					
Designer	Date	Drawn By	Date	Design Engineer	Date
M DAVIS	7/2013	MD	7/2013	J WERST	7/2013

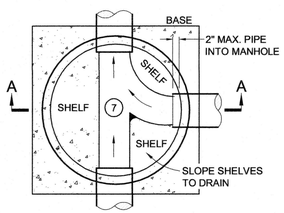
ROAD NO.	JOB NO.	SHEET NO.	SHEETS TOTAL
N/A	350102	3	4



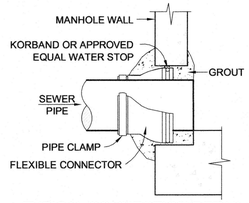
SECTION A-A

NOTES:

1. MANHOLE COVER AND FRAME SHALL HAVE A MINIMUM 24"Ø OPENING AND CONFORM TO HS-20 TRAFFIC LOADING. LID SHALL HAVE A BLIND PICKHOLE, WATERTIGHT GASKET, AND BE LETTERED "SANITARY SEWER".
2. CONCRETE COLLAR SHALL CONFORM TO STATE STANDARD 90-1.01, 565 LBS/CY CEMENTITIOUS MATERIAL [6 SACK], TROWELLED TO STREET GRADE, AND ALLOWED TO CURE 48 HOURS PRIOR TO FULL TRAFFIC USE.
3. PROVIDE 3" OR 6" (9" MAX) ADJUSTING RINGS AS NEEDED, GROUTED ON THE INSIDE. PROVIDE HYDRAULIC CEMENT GROUT BETWEEN MANHOLE FRAME AND TOP RING SHALL BE PER APPENDIX C3.
4. PRECAST SHAFT(S) AND ECCENTRIC CONE SHALL MEET ASTM C-478 61T FOR CLASS 2 REINFORCED CONCRETE PIPE, OR AS APPROVED BY THE DEPARTMENT.
5. JOINTS SHALL BE WATERTIGHT, SET WITH BUTYL RUBBER SEALANT (RUB'R-NEK OR EQUAL).
6. CONCRETE MANHOLE BASE SHALL CONFORM TO STATE STANDARD 90-1.01, 565 LBS/CY CEMENTITIOUS MATERIAL [6 SACK], AND REST UPON UNDISTURBED MATERIAL. BOTTOM SHAFT SHALL BE WET-SET OR SET IN FORMED GROOVE. PRECAST BASES MAY BE USED WITH PRIOR APPROVAL OF THE DEPARTMENT AND SHALL MEET ASTM C-478 61T.
7. CONCRETE CHANNEL SHALL BE STEEL TROWEL FINISH AND SHELF AREAS SHALL BE MONOLITHICALLY PLACED.
8. UNDER NO CIRCUMSTANCES SHALL UTILITY LIDS AND CONCRETE COLLARS BE LOCATED WITHIN CURBS, GUTTERS, SIDEWALKS, DRIVEWAY APRONS, CURB RAMPS, OR CROSS GUTTERS.
9. FOR CONNECTION TO EXISTING SSMH#3 AND SSMH#5 REMOVE EXISTING PIPE, CORE DRILL AND GROUT, AS DIRECTED BY THE ENGINEER.



PLAN VIEW

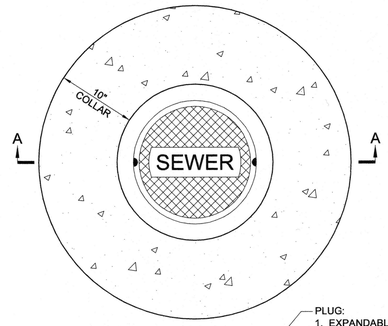


TYPICAL CONNECTION DETAIL

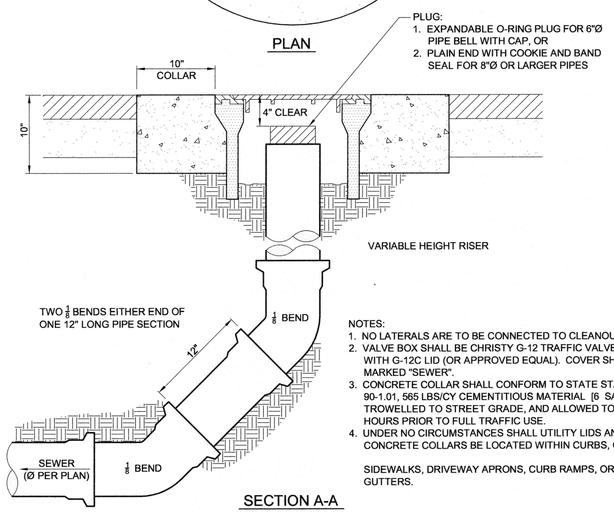
PINKERTON A-640 WITH SKID RESISTANT SURFACE, BLIND PICKHOLE, WATER TIGHT GASKET, AND HS-20 TRAFFIC LOADING, OR APPROVED EQUAL, MARKED "SANITARY SEWER"

LID DETAIL

TYPICAL SEWER MANHOLE 1
N.T.S.



PLAN

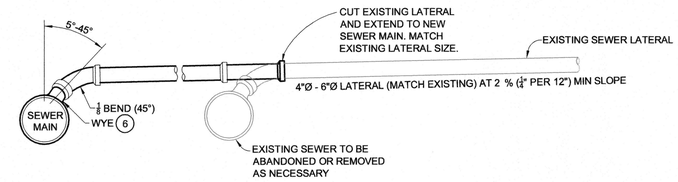


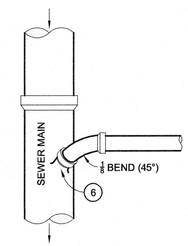
SECTION A-A

NOTES:

1. NO LATERALS ARE TO BE CONNECTED TO CLEANOUTS.
2. VALVE BOX SHALL BE CHRISTY G-12 TRAFFIC VALVE BOX WITH G-12C LID (OR APPROVED EQUAL). COVER SHALL BE MARKED "SEWER".
3. CONCRETE COLLAR SHALL CONFORM TO STATE STANDARD 90-1.01, 565 LBS/CY CEMENTITIOUS MATERIAL [6 SACK], TROWELLED TO STREET GRADE, AND ALLOWED TO CURE 48 HOURS PRIOR TO FULL TRAFFIC USE.
4. UNDER NO CIRCUMSTANCES SHALL UTILITY LIDS AND CONCRETE COLLARS BE LOCATED WITHIN CURBS, GUTTERS, SIDEWALKS, DRIVEWAY APRONS, CURB RAMPS, OR CROSS GUTTERS.

TYPICAL SEWER MAIN CLEANOUT 2
N.T.S.



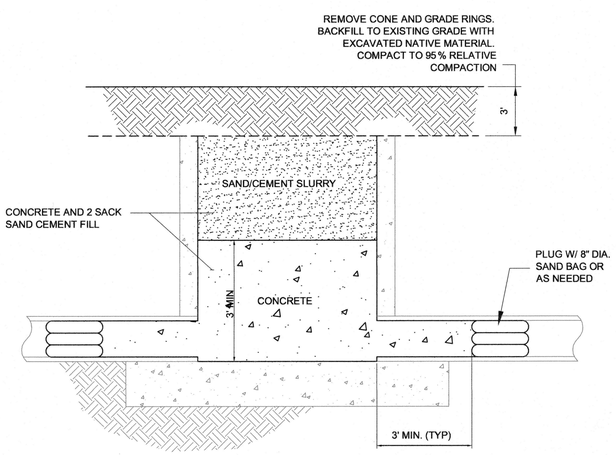


PLAN

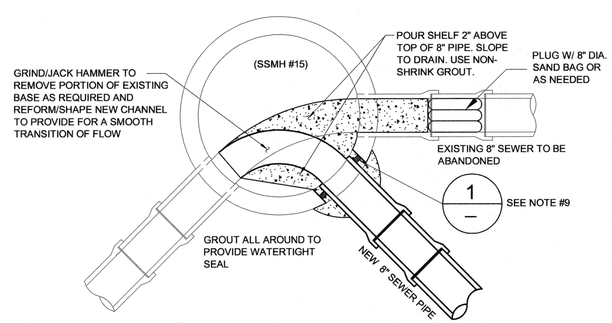
NOTES:

1. LATERAL EXTENSIONS SHALL BE PVC AND CONFORM TO ASTM D3034 OR EQUAL.
2. LATERALS SHALL BE PVC PIPE ENCASED IN CONCRETE WHEN THE COVER IS LESS THAN 24" OVER TH E TOP OF PIPE.
3. MAINTAIN MINIMUM 4' HORIZONTAL SEPARATION FROM WATER SERVICE.

TYPICAL SEWER LATERAL CONNECTION AT MAIN 3
N.T.S.



TYPICAL SEWER MANHOLE ABANDONMENT 4
N.T.S.



TYPICAL SEWER CONNECTION 5
N.T.S.

REGISTERED PROFESSIONAL ENGINEER
MARK K. DAVIS
7/8/13
PE. NO. 63477
CIVIL
STATE OF CALIFORNIA

OKLAHOMA AVE SEWER LINE REPLACEMENT					
TYPICAL SEWER DETAILS					
SAN LUIS OBISPO, CA.					
Designer	Date	Drawn By	Date	Design Engineer	Date
M DAVIS	7/2013	MD	7/2013	J WERST	7/2013

ROAD NO.	JOB NO.	SHEET NO.	SHEETS TOTAL
N/A	350102	4	4

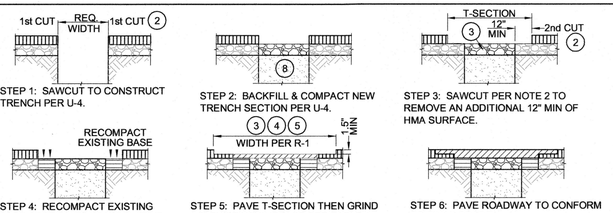
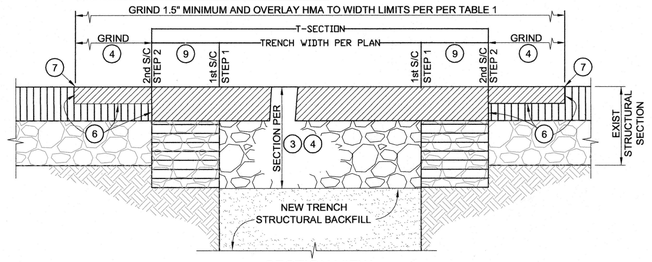


Table 1: Minimum Lane Width Repair Limits (see R-1)

PCI	Roadways with 500 ADT or less and within the URL	All Other Roadways
85-100	Full Lane Width Overlay	Full Lane Width Overlay
65-84	12" min. T-Section	Half Lane Width Overlay
<65	12" min. T-Section	12" min. T-Section

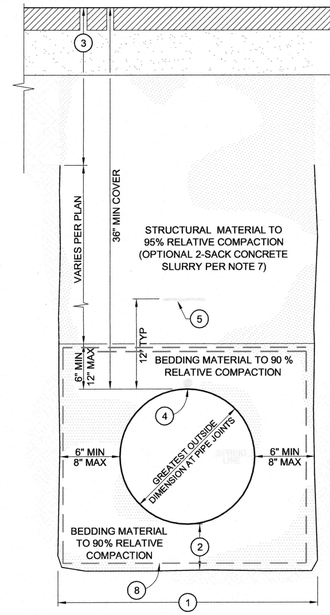
PAVEMENT REPAIR PROCEDURE



SECTION VIEW

NOTES:
1. TRENCHING IN A ROADWAY IS ONLY ALLOWED WHEN BORING IS SHOWN TO THE DEPARTMENT AS BEING INFEASIBLE.
2. SAWCUT TO REMOVE DAMAGED OR FAILED PAVEMENT SECTION ADJACENT TO THE EDGE OF TRENCH AS NECESSARY TO PROVIDE A CLEAN JOIN LINE. ALL SAWCUTS SHALL BE PERPENDICULAR OR TRANSVERSE TO THE TRAVEL LANE. CUT EDGES SHALL BE VERTICAL WITH SQUARE CORNERS AND SHALL BE STRAIGHT AND NEAT IN APPEARANCE. ALL SAWCUTS SHALL BE TO MINIMUM SHOWN OR TO COMPETENT PAVEMENT SECTION.
3. THE STRUCTURAL ROAD REPAIR SECTION SHALL MATCH THE EXISTING STRUCTURAL SECTION THICKNESS OR AS REQUIRED BY THE DEPARTMENT. THE MINIMUM STRUCTURAL SECTION SHALL BE:
   - 2-INCH MINIMUM HOT MIX ASPHALT (HMA) PER THE DESIGN STANDARDS TO 95 % RELATIVE COMPACTION, OVER
   - 6-INCH MINIMUM CLASS II AGGREGATE BASE TO 95 % RELATIVE COMPACTION, OVER
   - TRENCH SECTION PER DRAWING U-4 (STRUCTURAL BACKFILL TO 95 % MIN RELATIVE COMPACTION)
4. LONGITUDINAL: GRIND 1.5-INCHES (MINIMUM) FROM THE EXISTING ADJACENT HMA PAVEMENT SO THAT FINAL HMA SEAMS ARE LOCATED IN ACCORDANCE WITH TABLE 1 & DRAWING R-1, OR AS DIRECTED BY THE DEPARTMENT.
5. NEW HMA PAVEMENT SHALL BE PLACED IN LIFTS NOT EXCEEDING 3-INCHES (COMPACTED) AND SHALL BE ALLOWED TO COOL PER STATE SPECIFICATIONS PRIOR TO APPLICATION OF SUBSEQUENT LIFTS.
6. A TACK COAT SHALL BE APPLIED TO ALL HORIZONTAL AND VERTICAL CONFORM SURFACES PRIOR TO PAVING.
7. AFTER PAVING APPLY SS1H OIL (OR APPROVED EQUAL) TO ALL HMA SURFACE SEAMS PER MANUFACTURER'S RECOMMENDATIONS.
8. THE DEPARTMENT SHALL PROVIDE ADDITIONAL REQUIREMENTS WHEN TRENCHING IN EXISTING ROADS HAVING CONCRETE STRUCTURAL SECTIONS.
9. T-SECTION WIDTHS SHALL BE INCREASED AS DIRECTED BY THE DEPARTMENT FOR UTILITY PIPES EXCEEDING 36" IN DIAMETER.

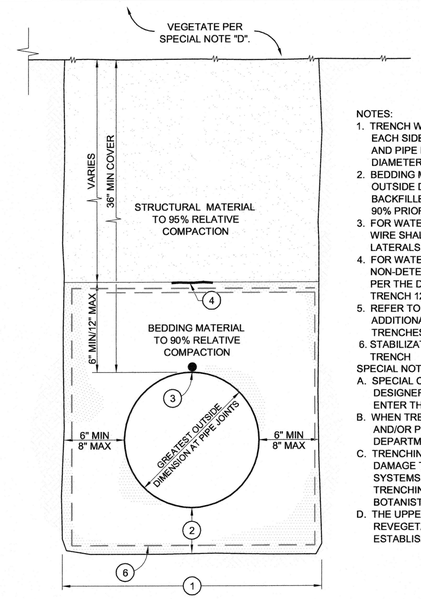
TYPICAL TRENCH REPAIR 1
N.T.S.



NOTES:
1. TRENCH WIDTH SHALL BE PIPE DIAMETER PLUS 12" (6" EACH SIDE OF PIPE) FOR PIPES 36" DIAMETER OR LESS, AND PIPE DIAMETER PLUS 16" (8" EACH SIDE) FOR PIPE DIAMETERS GREATER THAN 36".
2. BEDDING MEASUREMENT IS 6" BELOW GREATEST OUTSIDE DIMENSION AT PIPE JOINTS. PIPE SHALL BE BACKFILLED TO THE SPRING LINE AND COMPACTED TO 90% PRIOR TO COMPLETING INITIAL BACKFILL.
3. ROAD STRUCTURAL SECTION SHALL BE BASED ON THE TI AND R VALUE AT TIME OF CONSTRUCTION:
   - HOT MIX ASPHALT (HMA) PER THE DESIGN STANDARDS TO 95 % RELATIVE COMPACTION, OVER
   - CLASS II AGGREGATE BASE TO 95 % RELATIVE COMPACTION, OVER
   - 12" MINIMUM SUBGRADE TO 95 % RELATIVE COMPACTION
4. FOR WATER, 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID ATOP ALL PIPES AND SERVICE LATERALS.
5. FOR WATER AND SEWER, 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED AND COLOR CODED PER THE DESIGN STANDARDS SHALL BE BURIED IN THE TRENCH 12-INCHES ABOVE ALL PIPES AND LATERALS.
6. REFER TO STANDARD DRAWINGS U-3 TO U-3b FOR ADDITIONAL REQUIREMENTS FOR WATER AND SEWER TRENCHES.
7. CONCRETE SLURRY TRENCH BACKFILL SHALL CONFORM TO STATE STANDARD 90-1.01, 188 LBS/CY CEMENTITIOUS MATERIAL [2 SACK], TO SURFACE OF BASE COURSE SECTION. DO NOT PLACE AGGREGATE BASE ABOVE SLURRY BACKFILL.
8. STABILIZATION FABRIC IS TO BE USED ALONG ENTIRE TRENCH

BEDDING MATERIAL SIEVE SIZES	PERCENT PASSING	STRUCTURAL MATERIAL SIEVE SIZES	PERCENT PASSING
1"	100%	3"	100%
No. 4	80% - 100%	No. 4	35% - 100%
No. 200	0% - 15%	No. 30	20% - 100%

TYPICAL TRENCH DETAIL 2
N.T.S.



NOTES:
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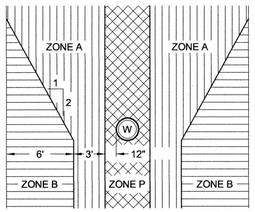
3. FOR WATER, 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID ATOP ALL PIPES AND SERVICE LATERALS.
4. FOR WATER AND SEWER, 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED AND COLOR CODED PER THE DESIGN STANDARDS SHALL BE BURIED IN THE TRENCH 12-INCHES ABOVE ALL PIPES AND LATERALS.
5. REFER TO STANDARD DRAWINGS U-3 TO U-3b FOR ADDITIONAL REQUIREMENTS FOR WATER AND SEWER TRENCHES.
6. STABILIZATION FABRIC IS TO BE USED ALONG ENTIRE TRENCH

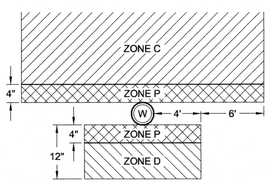
SPECIAL NOTES:
A. SPECIAL CONSIDERATION SHALL BE TAKEN BY THE DESIGNER TO ENSURE SURFACE DRAINAGE WILL NOT ENTER THE TRENCH.
B. WHEN TRENCHING ON STEEP SLOPES, CUT-OFF WALLS AND/OR PIPE ANCHORS MAY BE REQUIRED BY THE DEPARTMENT AND SHALL BE DETAILED ON THE PLANS.
C. TRENCHING ALIGNMENT SHALL BE DESIGNED TO AVOID DAMAGE TO EXISTING TREES AND THEIR ROOT SYSTEMS. WHEN ADJACENT TO TREES THEN THE TRENCHING RECOMMENDATIONS OF THE PROJECT BOTANIST SHALL BE FOLLOWED.
D. THE UPPER SURFACE SHALL BE SCARIFIED AND REVEGETATED. VEGETATIVE COVER SHALL BE ESTABLISHED PRIOR TO ACCEPTANCE OF WORK.

BEDDING MATERIAL SIEVE SIZES	PERCENT PASSING	STRUCTURAL MATERIAL SIEVE SIZES	PERCENT PASSING
1"	100%	3"	100%
No. 4	80% - 100%	No. 4	35% - 100%
No. 200	0% - 15%	No. 30	20% - 100%

TYPICAL TRENCH DETAIL 3
N.T.S.



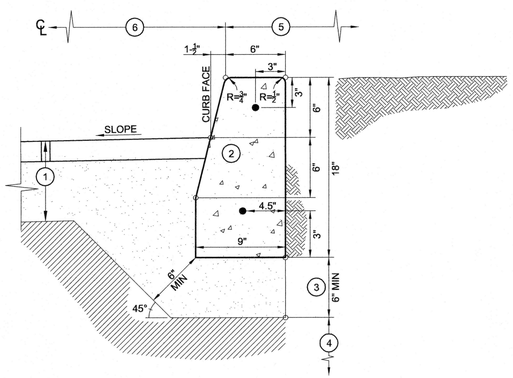
PARALLEL



CROSSING

ZONE	SPECIAL CONSTRUCTION REQUIRED FOR SEWER:
A	SEWER LINES PARALLEL TO WATER MAINS SHALL NOT BE PERMITTED IN THIS ZONE WITHOUT APPROVAL FROM THE RESPONSIBLE HEALTH AGENCY AND WATER SUPPLIER.
B	A SEWER LINE PLACED PARALLEL TO A WATER LINE SHALL BE CONSTRUCTED OF: 1. CLASS 4000, TYPE II, ASBESTOS-CEMENT PIPE WITH RUBBER GASKET JOINTS. 2. PLASTIC SEWER PIPE WITH RUBBER RING JOINTS (PER ASTM D3034) OR EQUIVALENT. 3. CAST OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS. 4. REINFORCED CONCRETE PRESSURE PIPE WITH COMPRESSION JOINTS (PER AWWA C302-74).
C	A SEWER LINE CROSSING A WATER MAIN SHALL BE CONSTRUCTED OF: 1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING AND MECHANICAL JOINTS. 2. A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900) PLASTIC PIPE, OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED. 3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED. 4. ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.
D	A SEWER LINE CROSSING A WATER MAIN SHALL BE CONSTRUCTED OF: 1. A CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING. 2. A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED. 3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED. 4. ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE. 5. ANY SEWER PIPE SEPARATED BY A 10-FOOT BY 10-FOOT, 4-INCH THICK REINFORCED CONCRETE SLAB.
P	ZONE P IS A PROHIBITED ZONE, SECTION 64630(E)(2) CALIFORNIA ADMINISTRATIVE CODE, TITLE 22.

UTILITY SEPARATION CRITERIA 4
N.T.S.



NOTES:
1. ROADWAY STRUCTURAL SECTION PER PLAN OR AS EXISTING.
2. CONCRETE CURB SHALL CONFORM TO STATE STANDARD 90-1.01, 520 LBS CEMENTITIOUS MATERIAL PER CUBIC YARD [5-1/2 SACK]. EXTRUDED CURB SHALL CONFORM TO STATE STANDARD 73-1.01. CONCRETE CURING SHALL BE BY PIGMENTED CURING COMPOUND METHOD USING WHITE PIGMENT TYPE.
3. 6" MINIMUM CLASS II AGGREGATE BASE TO 95 % RELATIVE COMPACTION OR MATCH BASE THICKNESS REQUIREMENT FOR NEW OR EXISTING ROAD SECTION, WHICHEVER IS GREATEST.
4. 12" MINIMUM SUBGRADE TO 95 % RELATIVE COMPACTION .
5. SUBGRADE AND AGGREGATE BASE COMPACTION REQUIREMENTS SHALL EXTEND TO THE BACK OF CURB OR TO THE BACK OF ATTACHED SIDEWALK (WHICHEVER CONDITION IS APPLICABLE).
6. PAVEMENT WIDTH MEASURED FROM ROAD CENTERLINE TO THIS POINT.
7. 1/2"Ø x 18" LONG GREASED SMOOTH DOWELS (●) SHALL BE CONSTRUCTED AT ALL EXPANSION JOINTS PER STANDARD DRAWING C-1.
8. EXPANSION JOINTS SHALL BE CONSTRUCTED AT 30-FEET MAXIMUM INTERVALS, AT ENDS OF ALL CURB RETURNS, AND EACH SIDE OF DRIVEWAY DEPRESSIONS. THE INTERVALS BETWEEN EXPANSION JOINTS SHALL VARY TO ALLOW MATCHING OF JOINTS ADJACENT EXISTING IMPROVEMENTS WHEN APPLICABLE PER STANDARD DRAWING C-1.
9. WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED AT 10-FEET MAXIMUM INTERVALS PER STANDARD DRAWING C-1. THE INTERVALS BETWEEN EXPANSION JOINTS SHALL VARY TO ALLOW MATCHING OF JOINTS ADJACENT EXISTING IMPROVEMENTS WHEN APPLICABLE.
10. UNDER NO CIRCUMSTANCES SHALL UTILITY LIDS AND CONCRETE COLLARS BE LOCATED WITHIN THE TOP OF CURB.

TYPICAL CONCRETE CURB 5
N.T.S.

OKLAHOMA AVE SEWER LINE REPLACEMENT					
TYPICAL SEWER DETAILS					
SAN LUIS OBISPO, CA.					
Designer	Date	Drawn By	Date	Design Engineer	Date
M DAVIS	7/2013	MD	7/2013	J WERST	7/2013