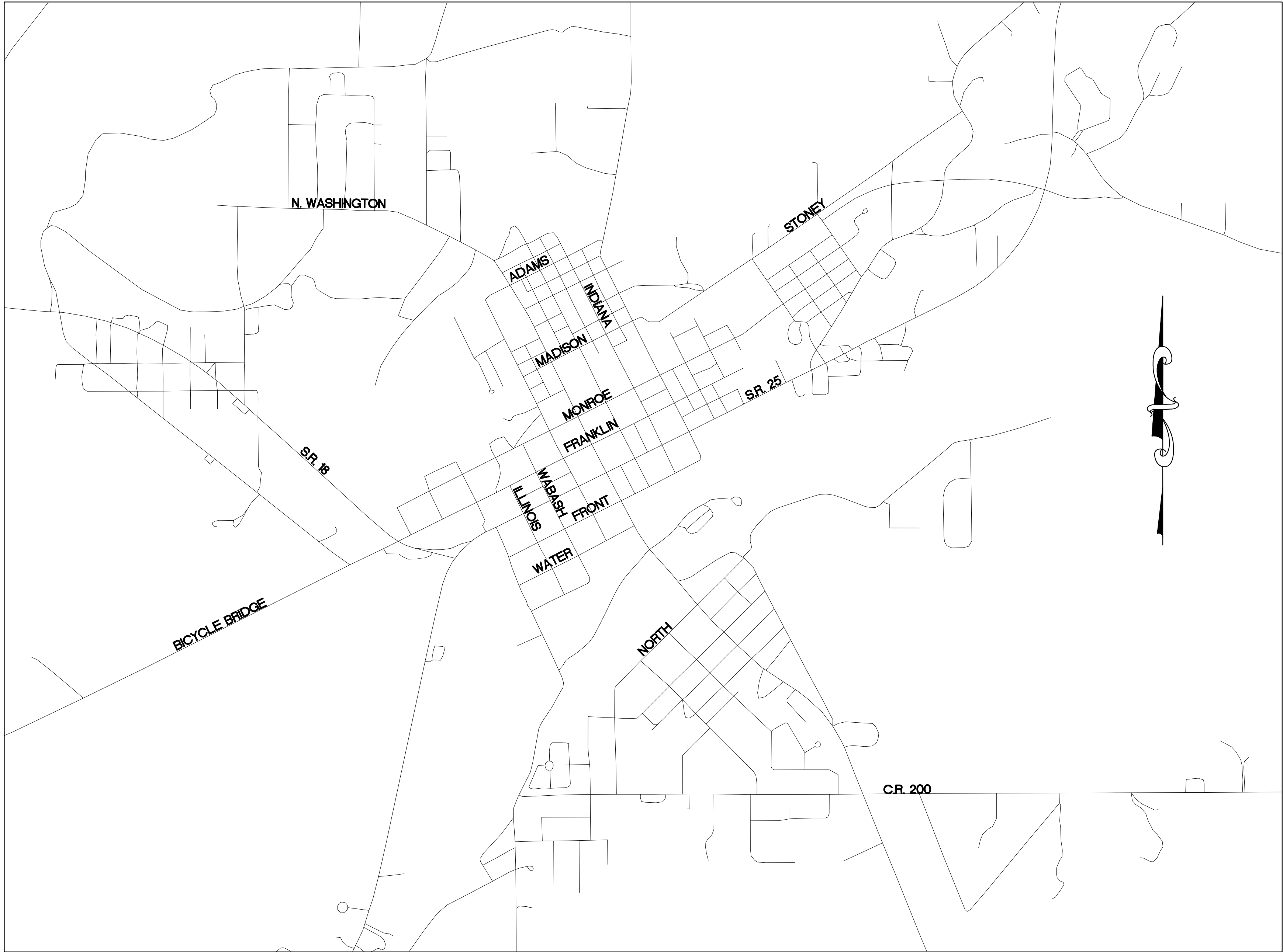


CITY OF DELPHI, INDIANA TYPICAL CONSTRUCTION GUIDELINES AND DETAILS 2008

CITY OFFICIALS

RANDY STRASSER, Mayor
JANICE ROE, Clerk Treasurer

JEAN HOWELL, Community Devel. Head
AARON LYONS, Street Dept. Head
RICHARD VANSICKLE, WWT Head
GARY HATHWAY, Waterworks Dept. Head



INDEX:

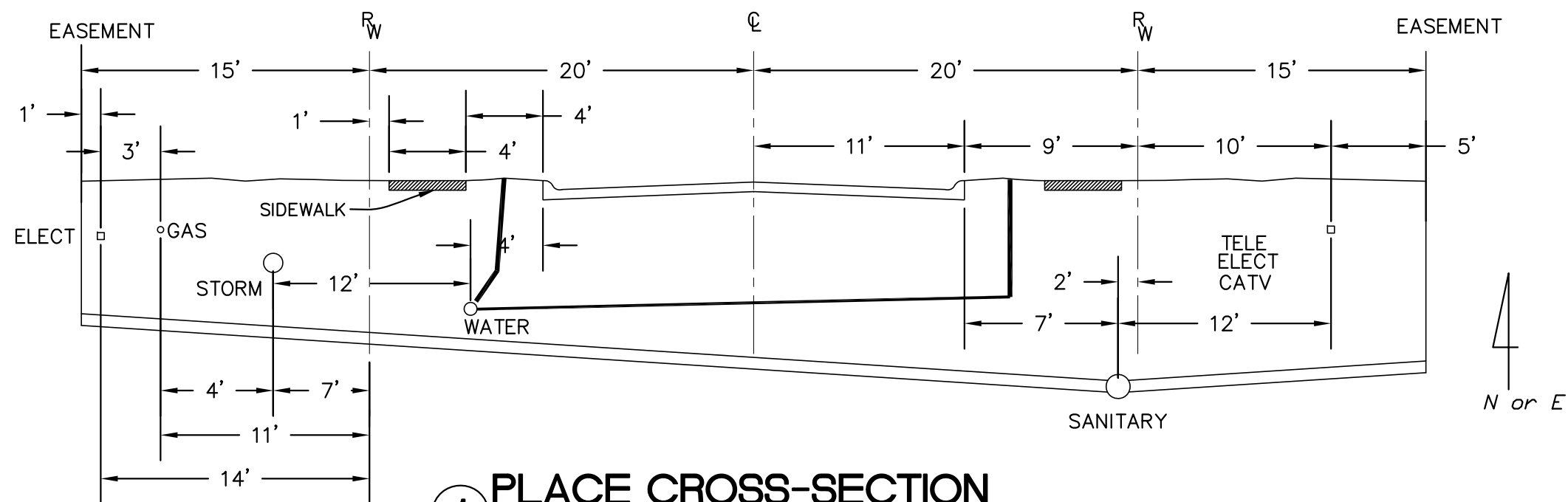
- 1. COVER
- 2. GENERAL NOTES AND GUIDELINES FOR UTILITY LOCATIONS
- 3. PAVEMENT AND CURB TYPICAL SECTIONS AND NOTES
- 4. CONCRETE PAVEMENT, SIDEWALK AND DRIVEWAY TYPICAL SECTIONS AND NOTES
- 5. PAVEMENT AND CURB TYPICAL SECTIONS AND NOTES
- 6. PAVEMENT REPAIR AND RESTORATION TYPICAL SECTIONS AND NOTES
- 7. WATER MAIN AND METER TYPICAL DETAILS AND NOTES
- 8. WATERMAIN AND HYDRANT TYPICAL DETAILS AND NOTES
- 9. SANITARY SEWER TYPICAL DETAILS AND NOTES
- 10. MISCELLANEOUS UTILITY TYPICAL DETAILS AND NOTES
- 11. STORM SEWER TYPICAL DETAILS AND NOTES
- 12. STORM SEWER STRUCTURES, DRAINAGE AND EROSION CONTROL TYPICAL DETAILS AND NOTES

PROJECT NAME	PROJECT SHEET NUMBER
	of

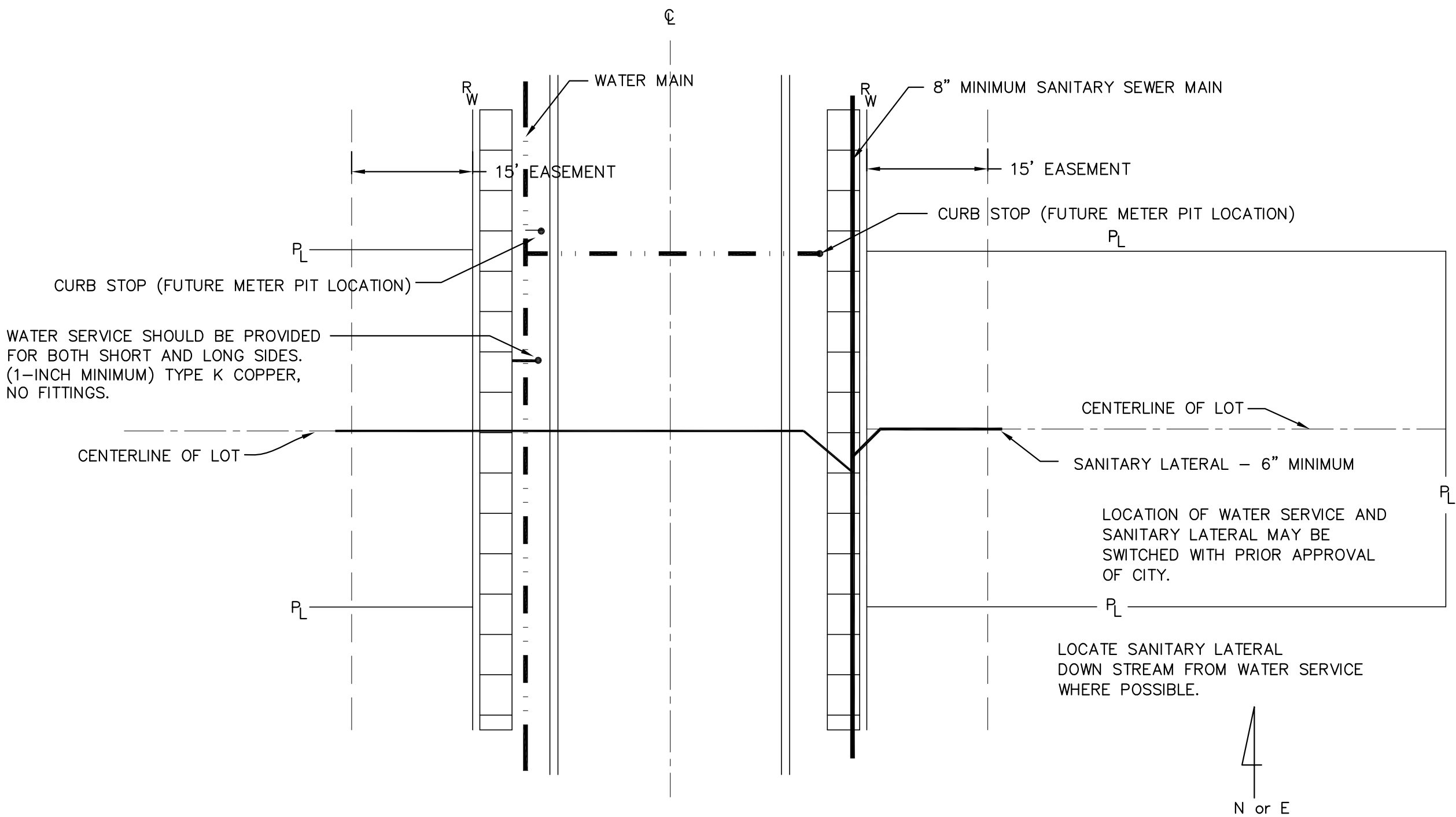
CITY OF DELPHI		
(800) 382-5544	HOLEY MOLEY	201 SOUTH UNION STREET DELPHI, INDIANA 46923
(765) 564-2345	COMMUNITY DEV.	
(765) 564-2313	WASTEWATER DEPARTMENT	TYPICAL CONSTRUCTION GUIDELINES AND DETAILS
(765) 564-3944	WATER WORKS	
(765) 564-2234	FIRE DEPT.	
(765) 564-2345	POLICE DEPT.	
		DATE MARCH 2008
		SHEET 1 OF 12

5 GENERAL NOTES

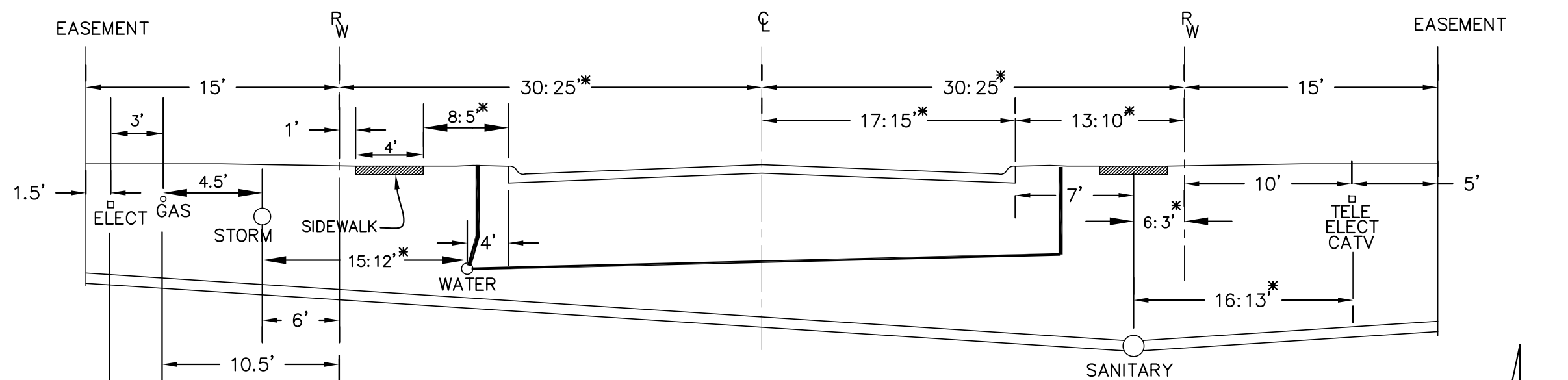
1. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES AT LEAST 24 HOURS PRIOR TO ANY CONSTRUCTION OR EXCAVATION. DURING CONSTRUCTION, ALL UTILITIES SHALL BE ADEQUATELY SUPPORTED TO MINIMIZE DAMAGE.
2. ALL PERMITS AND EASEMENTS WILL BE OBTAINED BY THE OWNER WITH ANY REQUIRED INSURANCE OR BONDS TO BE PROVIDED BY THE CONTRACTOR PRIOR TO THE START OF WORK ON THE PROJECT.
3. ALL VERTICAL CONTROL SHALL BE ON NORTH AMERICAN VERTICAL DATUM (NAVD 1988). HORIZONTAL CONTROL SHALL BE ON NAD STATE PLANE COORDINATES.
4. WHEREVER PROPRIETARY EQUIPMENT IS SPECIFIED, "OR APPROVED EQUAL" IS IMPLIED ALL PROPOSALS FOR SUBSTITUTION SHALL BE SUBMITTED TO THE CITY IN WRITING FOR THEIR APPROVAL.
5. ALL AREAS DISTURBED BY THE CONSTRUCTION PROCESS SHALL BE FERTILIZED AND SEEDED. ADEQUATE MULCHING SHALL BE PLACED AFTER SEEDING AND FERTILIZING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ADEQUATE GROWTH IS ESTABLISHED. SODDING WILL BE REQUIRED AS SHOWN ON THE PLANS.
6. TRENCHES UNDER PAVED AREAS (EXCLUDING SIDEWALKS) SHALL BE BACKFILLED WITH GRANULAR MATERIAL PER INDIANA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", LATEST EDITION, SECTION 211, AND COMPACTED IN LIFTS. GRANULAR MATERIAL TO EXTEND FIVE FEET BEYOND THE LIMITS OF THE PAVED AREA WITH A 1:1 SLOPE TO THE BOTTOM OF THE TRENCH. FLOWABLE MORTAR PER SECTION 213 OF INDIANA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", LATEST EDITION, MAY BE USED IN LIEU OF GRANULAR MATERIAL. WITH PRIOR APPROVAL OF THE DELPHI BOARD OF WORKS.
7. INSTALLATION OF OR PROVISIONS FOR THE INSTALLATION OF ALL UNDERGROUND UTILITIES INCLUDING SERVICE LATERALS TO BE PLACED UNDER THE PAVEMENTS SHALL BE ESTABLISHED PRIOR TO THE CONSTRUCTION OF THE PAVEMENTS
8. CONTRACTOR SHALL CONTACT THE CITY IF ANY DAMAGE TO CITY UTILITIES OCCURS. DAMAGE TO CITY'S WATER MAIN OR CITY'S SEWERS BY CONTRACTORS WILL BE REPAIRED BY CITY'S WATER WORKS DEPT. OR SEWER DEPT. WITH ALL COSTS OF REPAIR TO BE PAID BY THE CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE CITY. OTHER DAMAGED UTILITIES SHALL BE REPAIRED IN ACCORDANCE WITH THE AFFECTED UTILITY'S REPAIR POLICY.
9. 18" VERTICAL SEPARATION AND 10'- 0" HORIZONTAL SEPARATION IS TO BE MAINTAINED BETWEEN WATER MAINS, HYDRANTS AND SEWERS (STORM AND SANITARY).
10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A SAFE CONSTRUCTION SITE AND FOR KEEPING SURROUNDING STREETS NEAT AND CLEAN. THE CONTRACTOR WILL PROVIDE ALL TRAFFIC CONTROL REQUIRED ON PUBLIC WAYS NEAR THE PROJECT.
11. THE CONSTRUCTION WORK SHALL CONFORM TO THE REQUIREMENTS OF ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT.
12. THE CONTRACTOR WILL NOTIFY THE APPROPRIATE GOVERNMENTAL AGENCIES AT LEAST 48 HOURS PRIOR TO STARTING OR RESUMING WORK ON A PROJECT.
13. THE CONTRACTOR WILL PROVIDE SAFE ACCESS TO THE CONSTRUCTION SITE FOR ALL INSPECTORS AND WILL PROVIDE MATERIAL SAMPLES FOR TESTING.
14. INFORMATION REQUIRED FOR PREPARING "AS-BUILT" DRAWINGS MUST BE RECORDED PRIOR TO THE BACKFILLING OF THE UNDERGROUND FACILITY.
15. TOP OF MANHOLE FRAMES TO BE SET AT PROPOSED YARD OR SIDEWALK GRADE WHEN LOCATED IN FRONT YARD AREA OF LOT OR RIGHT-OF-WAY.
16. ALL SIGN, MARKINGS AND OTHER TRAFFIC CONTROL DEVICES SHALL COMPLY WITH INDOT STANDARDS AND IMUTCD.
17. UTILITY PLACEMENT FOR OTHER THAN SINGLE FAMILY RESIDENCES, CONTACT CITY ENGINEERS OFFICE FOR REQUIREMENTS.
18. SIDEWALK WIDTH SHALL BE IN ACCORDANCE WITH THE CURRENT SUBDIVISION ORDINANCE
19. SIDEWALK PLACEMENT SHALL BE REFERENCED FROM THE RIGHT OF WAY



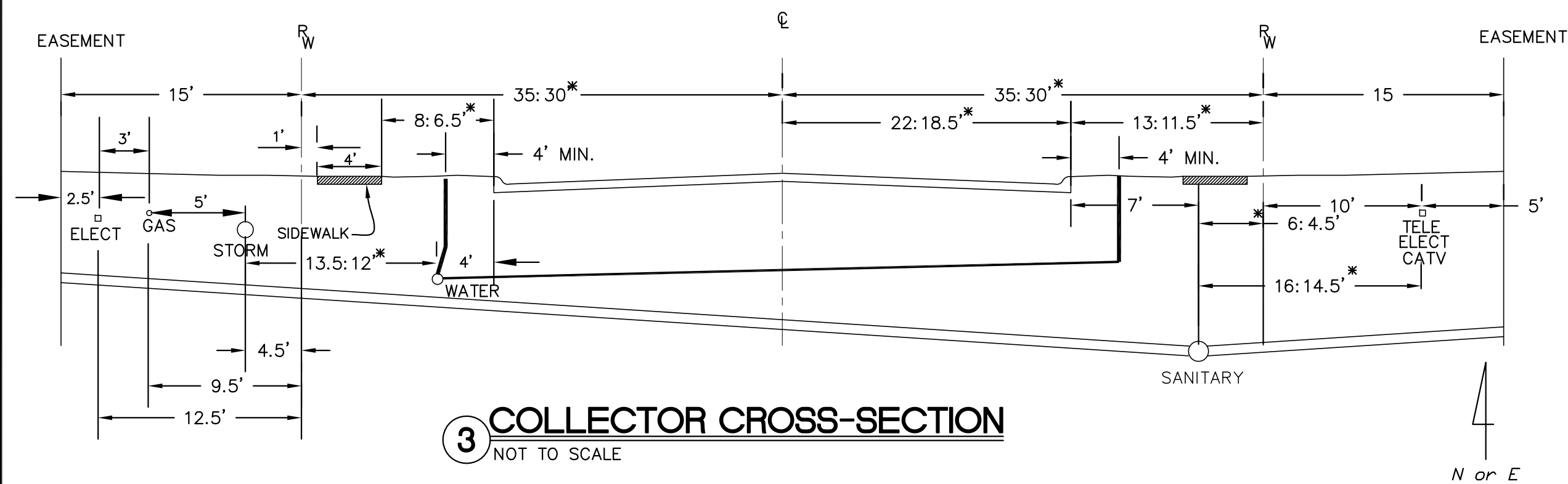
1 PLACE CROSS-SECTION
NOT TO SCALE



USE NORTH AND EAST FOR DIRECTIONAL CONTROL.
GUIDELINES FOR UTILITY LOCATIONS WITHIN THE
ROAD RIGHT-OF-WAY AND/OR UTILITY EASEMENTS.



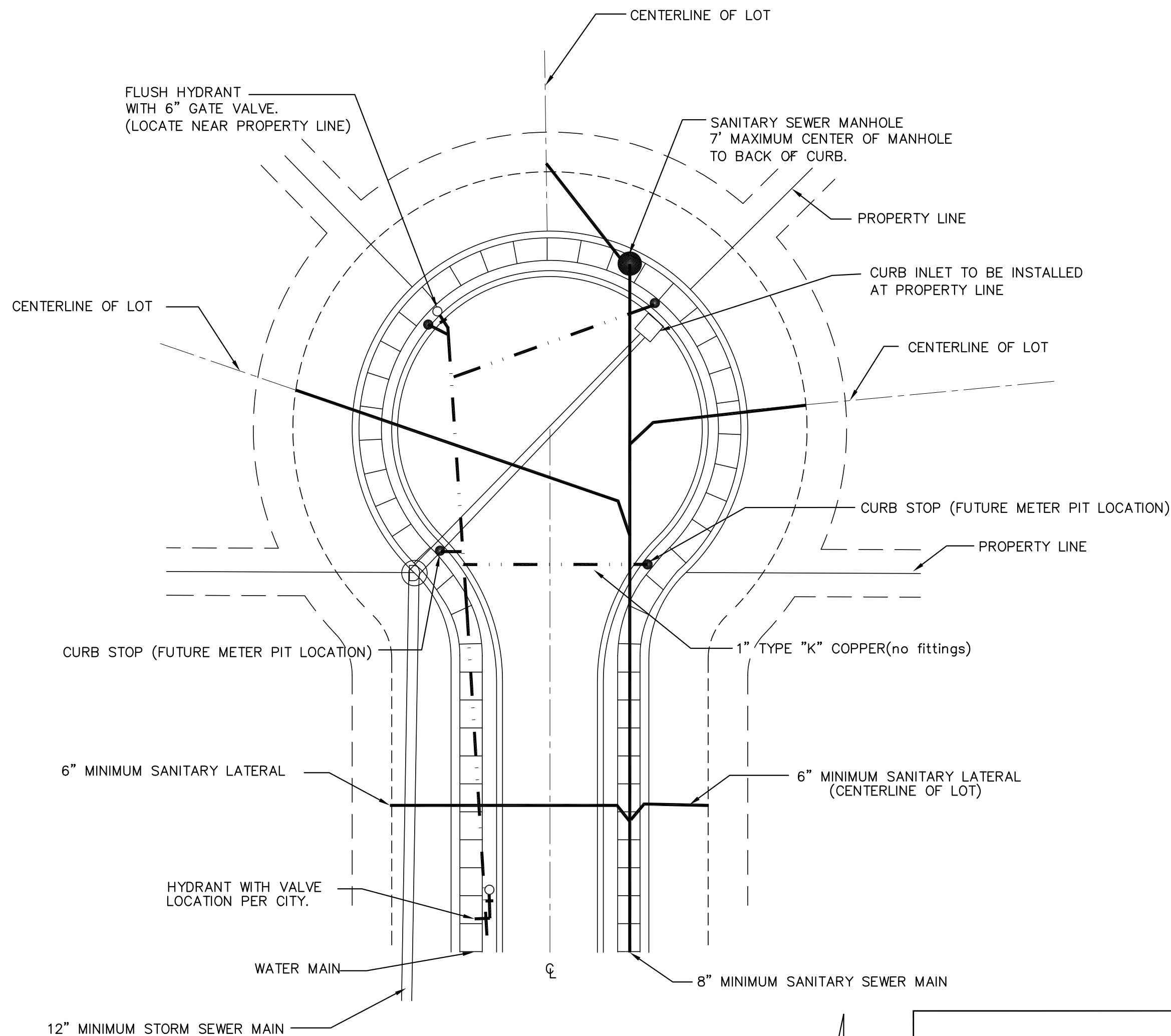
2 LOCAL CROSS-SECTION
NOT TO SCALE



3 COLLECTOR CROSS-SECTION
NOT TO SCALE

* = NONRESIDENTIAL REQUIREMENT; RESIDENTIAL REQUIREMENT

USE NORTH AND EAST FOR DIRECTIONAL CONTROL.
GUIDELINES FOR UTILITY LOCATIONS WITHIN THE
ROAD RIGHT-OF-WAY AND/OR UTILITY EASEMENTS.



USE NORTH AND EAST FOR DIRECTIONAL CONTROL.
GUIDELINES FOR UTILITY LOCATIONS WITHIN THE
ROAD RIGHT-OF-WAY AND/OR UTILITY EASEMENTS.

4 UTILITY LOCATIONS
NOT TO SCALE

PROJECT NAME	PROJECT SHEET NUMBER
	of

CITY OF DELPHI

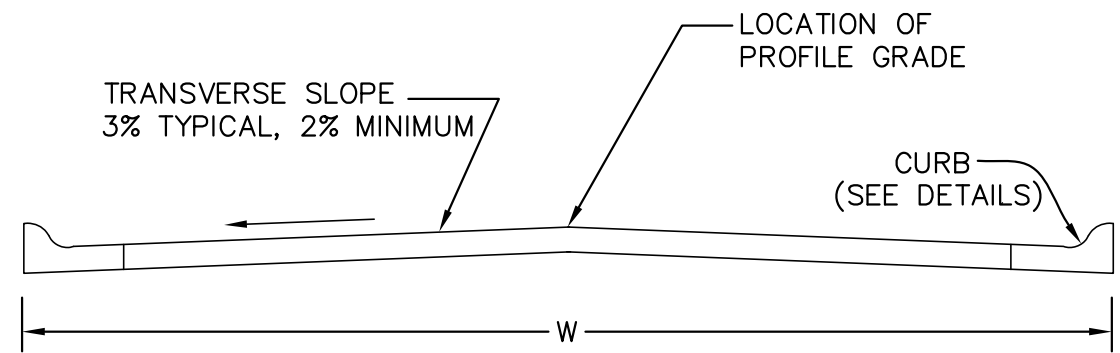
(800) 382-5544 HOLEY MOLEY
(765) 564-2345 COMMUNITY DEV.
(765) 564-2313 WASTEWATER DEPARTMENT
(765) 564-3944 WATER WORKS
(765) 564-2234 FIRE DEPT.
(765) 564-2345 POLICE DEPT.

201 SOUTH UNION STREET
DELPHI, INDIANA 46923

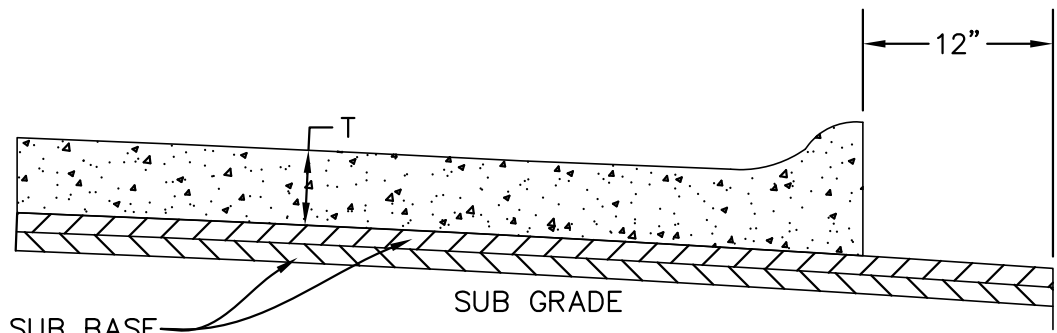
GENERAL NOTES AND GUIDELINES
FOR UTILITY LOCATIONS

DATE
MARCH 2008

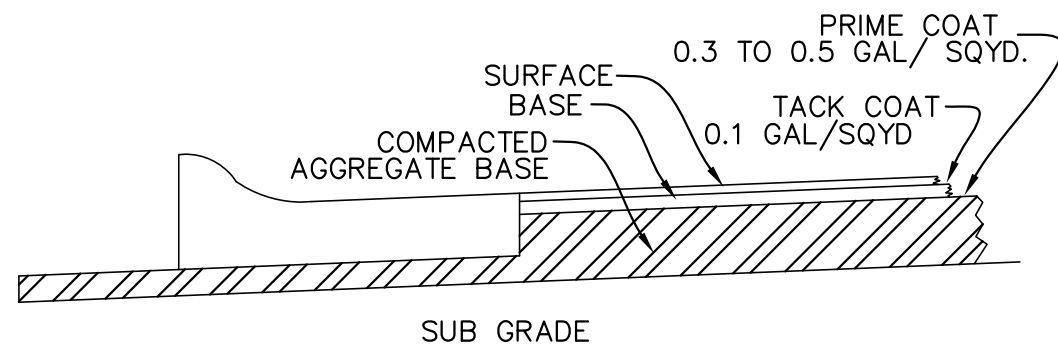
SHEET
2
OF
12



1 STANDARD STREET CROSS-SECTION
NOT TO SCALE



CONCRETE RIGID PAVEMENT SECTION
NOT TO SCALE



ASPHALT PAVEMENT SECTION
NOT TO SCALE
BASE TO BE CONSTRUCTED PRIOR TO CONSTRUCTION OF CURB AND GUTTER

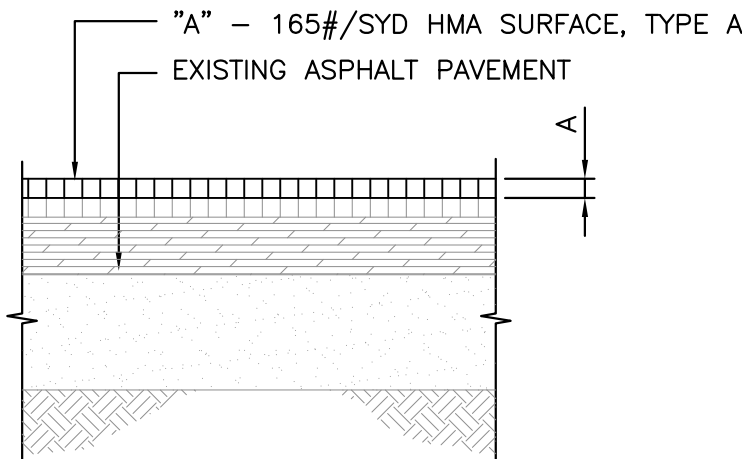
CLASS OF STREET ⁽¹⁾	CURB ⁽⁶⁾	SUB GRADE THICKNESS	CONCRETE PAVEMENT ⁽³⁾		ASPHALT PAVEMENT ⁽²⁾		
			T (PVT THICKNESS)	TRANSVERSE JOINT SPACING	9.5 mm (HMA SURFACE)	25 mm (BASE)	#53 (AGG. BASE)
PRIMARY ARTERIAL	TYPE III	TO BE DETERMINED BY CITY	8"	--	(TO BE DETERMINED BY THE CITY)		
SECONDARY ARTERIAL	TYPE III	TO BE DETERMINED BY CITY	8"	--	(TO BE DETERMINED BY THE CITY)		
COLLECTOR	TYPE I (RESIDENTIAL) TYPE III (NONRESIDENTIAL)	6"	6"	14'	1.5"	4.5"	12" COMPACTED (2 LIFTS)
LOCAL AND PLACE	TYPE I (RESIDENTIAL) TYPE II (NONRESIDENTIAL)	6"	6"	14'	1.5"	4.5"	12" COMPACTED (2 LIFTS)

ITEM	MATERIAL TYPE	INDOT SPECIFICATIONS SECTION
SUB GRADE	EARTH	207
SUB BASE		302
CURB	COMBINED CURB AND GUTTER	605.04-a,b,c,f,g,h,i
BASE (AGGREGATE)	COMPACTED AGGREGATE	301
BASE (ASPHALT)	ASPHALTIC CONCRETE	304
INTERMEDIATE	ASPHALTIC CONCRETE	401,402
SURFACE	ASPHALTIC CONCRETE	401,402
PRIME COAT	MC-70, AE-P	405
TACK COAT	AE-T	406
PAVEMENT (CONCRETE)	PORTLAND CEMENT CONCRETE	305,501
SIDEWALKS, RAMPS, ETC.	PORTLAND CEMENT CONCRETE	604
JOINT SEALANT	SEALANT	906

NOTES:

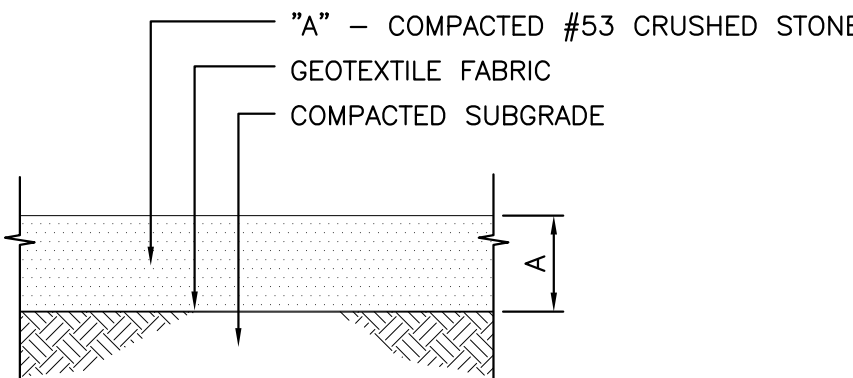
- AS DEFINED BY THE SUBDIVISION ORDINANCE OF CARROLL COUNTY.
- 8" OF LIME TREATED SUBBASE CAN BE SUBSTITUTED FOR 6" OF #53 AGGREGATE BASE UNDER ASPHALT. LIME TREATMENT CAN BE USED IN AREAS OF NEW CONSTRUCTION ONLY AND WITH PRIOR WRITTEN APPROVAL OF THE DELPHI BOARD OF WORKS.
- SUB BASE SHALL BE 6" OF #53'S.
- SUB BASE FOR CONCRETE PAVEMENT WHERE UNDERDRAINS ARE REQUIRED SHALL BE 3" OF #8'S OR #43'S FOR DRAINAGE AND 4" OF #53'S FOR SEPARATION.
- ALTERNATE PAVEMENT DESIGNS MAY BE SUBMITTED TO DELPHI BOARD OF WORKS FOR APPROVAL.
- SEE SHEET 12 FOR CURB INLET DETAILS. PERIMETER DRAIN SHALL EXTEND 50 FT. EACH DIRECTION FROM THE CURB INLET.

2 TYPICAL PAVEMENT SECTIONS AND NOTES
NOT TO SCALE



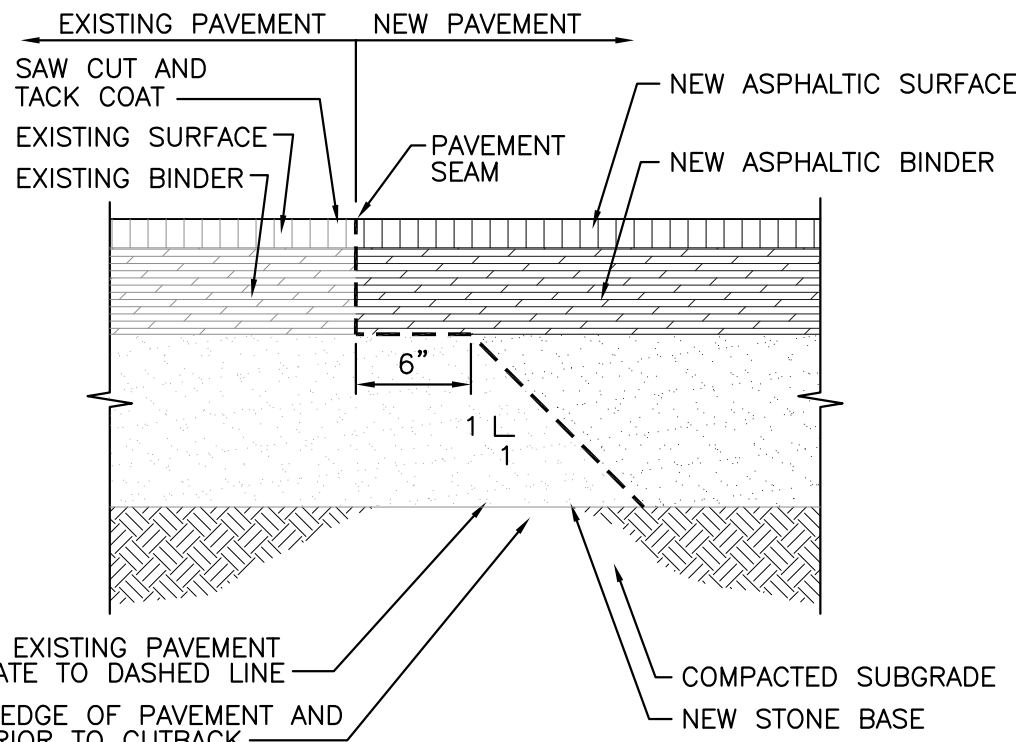
GENERAL NOTES:
1. INSTALL ASPHALT OVERLAY PER LATEST ADDITION OF INDOT SPECIFICATIONS, AT TIME OF CONSTRUCTION.

3 NEW ASPHALT OVERLAY DETAIL
NOT TO SCALE



KEY:	A
CRUSHED STONE DEPTH	6"

4 NEW STONE PAVEMENT DETAIL
NOT TO SCALE



REMOVE EXISTING PAVEMENT AGGREGATE TO DASHED LINE
ROUGH EDGE OF PAVEMENT AND BASE PRIOR TO CUTBACK

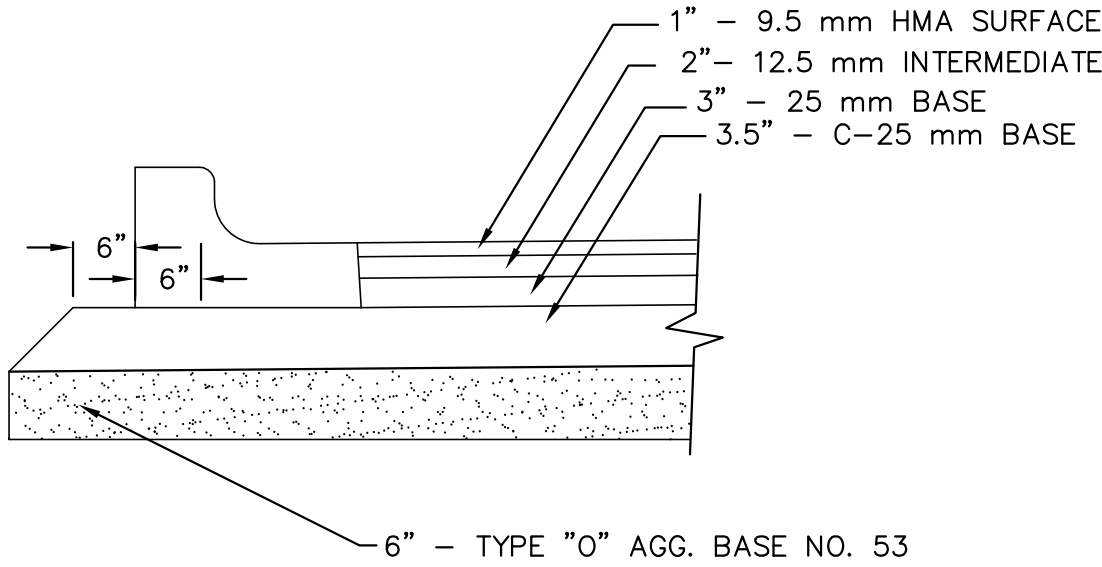
GENERAL NOTES:
1. INSTALL ASPHALT PAVEMENT PER LATEST ADDITION OF INDOT SPECIFICATIONS.

2. MATCH TOP OF PAVEMENT ELEVATIONS.

8 ASPHALT PAVEMENT TRANSITION DETAIL
NOT TO SCALE

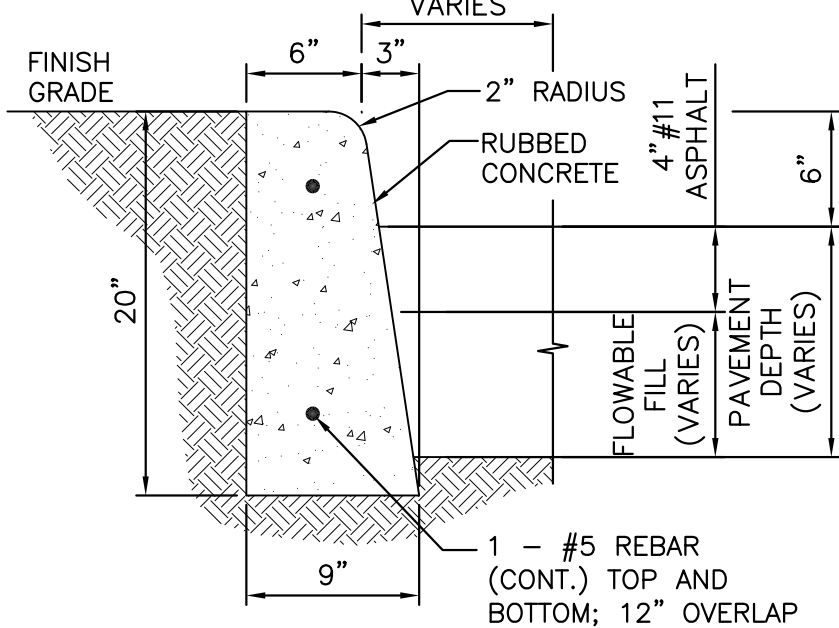
5 PAVEMENT CONSTRUCTION NOTES

- INSTALLATION OF OR PROVISIONS FOR THE INSTALLATION OF ALL UNDERGROUND UTILITIES, INCLUDING SERVICE LATERALS, TO BE PLACED UNDER THE PAVEMENTS SHALL BE ESTABLISHED PRIOR TO THE CONSTRUCTION OF THE PAVEMENTS.
- ALL PAVEMENT, CURBS, SIDEWALKS, RAMPS, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS AND IN CLOSE CONFORMANCE WITH THE LINES, GRADES, THICKNESSES AND TYPICAL CROSS SECTIONS SHOWN ON THE PLANS. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH DESIGNATED SECTIONS OF THE INDIANA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", LATEST EDITION.
- SUBBASE AND SUB GRADE FILL MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698.
- WHEREVER RIGID PAVEMENT IS TO BE USED THE CONTRACTOR SHALL SUBMIT A DETAILED PAVING PLAN TO THE DELPHI BOARD OF WORKS. THE PAVING PLAN SHALL SHOW THE LOCATION AND TYPE OF JOINTING TO BE USED IN THE CONSTRUCTION. THE LOCATION AND TYPE OF JOINTING SHALL BE IN ACCORDANCE WITH THE CITY STANDARDS AND GUIDELINES.
- WHENEVER SUB GRADE STABILIZATION IS TO BE USED THE CONTRACTOR SHALL SUBMIT A WRITTEN PLAN DETAILING THE APPLICATION METHOD. THE PLAN MUST COMPLY WITH THE STATE OF INDIANA ENVIRONMENTAL REGULATIONS AND STANDARDS AND BE APPROVED BY THE DELPHI BOARD OF WORKS.
- RECYCLED CONCRETE MAY BE USED AS # 53 AGG. BASE ON A CASE BY CASE BASIS UPON PRIOR WRITTEN APPROVAL OF THE CITY.
- WHEREVER PROPRIETARY EQUIPMENT IS SPECIFIED, "OR APPROVED EQUAL" IS IMPLIED. ALL PROPOSALS FOR SUBSTITUTION SHALL BE SUBMITTED TO THE CITY IN WRITING FOR THEIR APPROVAL.



(INTERSECTION OF LOCAL, PLACE OR COLLECTOR WITH ARTERIAL)

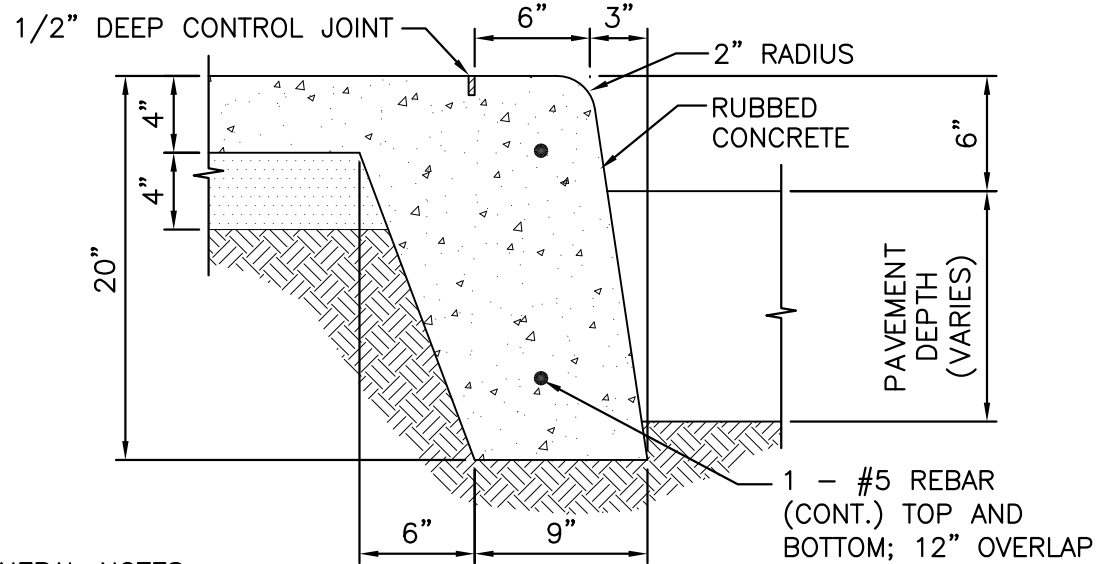
6 ARTERIAL APPROACH PAVEMENT SECTION
NOT TO SCALE



GENERAL NOTES:

- INSTALL PER LATEST ADDITION OF INDOT SPECIFICATIONS, AT TIME OF CONSTRUCTION.
- EXPANSION JOINTS SHALL BE PLACED AT THE ENDS OF ALL RETURNS AND AT INTERVALS OF 500 FEET FOR SLIP CURBS AND AT INTERVALS OF 40 FEET FOR HAND-FORMED CURBS. EXPANSION JOINTS SHOULD ALSO BE PLACED AT ALL PC'S, PT'S INTERSECTIONS AND AT THE END AND/OR BEGINNING OF A DAYS POUR. CONTROL JOINTS SHALL BE PLACED EVERY 10 FEET.

7 NEW STRAIGHT CURB DETAIL
NOT TO SCALE



GENERAL NOTES:

- INSTALL PER LATEST ADDITION OF INDOT SPECIFICATIONS, AT TIME OF CONSTRUCTION.
- EXPANSION JOINTS SHALL BE PLACED AT THE ENDS OF ALL RETURNS AND AT INTERVALS OF 500 FEET FOR SLIP CURBS AND AT INTERVALS OF 40 FEET FOR HAND-FORMED CURBS. EXPANSION JOINTS SHOULD ALSO BE PLACED AT ALL PC'S, PT'S INTERSECTIONS AND AT THE END AND/OR BEGINNING OF A DAYS POUR. CONTROL JOINTS SHALL BE PLACED EVERY 10 FEET.
- WALK TO HAVE A MAXIMUM 2% CROSS SLOPE PER ADA REQUIREMENTS.

9 NEW INTEGRAL CURB AND WALK DETAIL
NOT TO SCALE

10 QUALITY CONTROL REQUIREMENTS

- ALL TESTING SHALL BE IN ACCORDANCE WITH THE LATEST INDOT STANDARD SPECIFICATIONS. ALL TESTS WHERE PRACTICABLE SHALL BE WITNESSED BY THE CITY. CONTRACTOR SHALL COORDINATE TESTING SCHEDULE WITH THE DELPHI BOARD OF WORKS. ALL TEST RESULTS SHALL BE SUBMITTED TO THE DELPHI BOARD OF WORKS WITHIN 48 HOURS OF THE COMPLETION OF EACH TEST AND PRIOR TO PLACING ANY MATERIAL ON THE SUBBASE/SUBGRADE. THE FREQUENCY OF TESTING WHERE SHOWN IS A MINIMUM. ADDITIONAL TESTING MAY BE REQUIRED AT THE DIRECTION OF THE PUBLIC WORKS INSPECTOR.
- THE DEVELOPER/CONTRACTOR SHALL RETAIN AN INDEPENDENT TESTING FIRM (UNLESS OTHERWISE NOTED) TO PERFORM THE FOLLOWING TESTING:

A. SUBGRADE:

- COMPACTION (FILL SECTIONS): 1 TEST PER LIFT PER 500 LF OF SINGLE LANE WIDTH.
- ADEQUACY OF SUBGRADES SHALL BE DETERMINED SOLELY BY THE PUBLIC WORKS INSPECTOR. A PROOFROLL SHALL BE PERFORMED ON ALL STREET SUB GRADE PRIOR TO PLACING STONE AND INSTALLING CURB. SUBGRADE SHALL MEET INDOT SPECIFICATION SECTION 207, EXCEPT THAT ONLY THE TOP 6" OF SUBGRADE SHALL BE TESTED FOR 100% STANDARD COMPACTION. PROOFROLLING THAT COMPLIES WITH INDOT SPECIFICATION 203.26 IS ALSO REQUIRED, EXCEPT THAT PROOFROLLING MAY ALSO BE ACCOMPLISHED USING A FULLY LOADED TANDEM OR TRI-AXLE DUMP TRUCK IN LIEU OF THE SPECIFIED RUBBER TIRE ROLLER. ROLLER MARKS LESS THAN 1/2" ARE ACCEPTABLE, AS ARE DEFLECTIONS LESS THAN 1/2" OVER THE LENGTH OF THE ROLLER OR TRUCK. IF THE SUBGRADE DOES NOT PASS THESE SPECIFICATIONS, THEN SUBGRADE TREATMENTS, INCLUDING CHEMICAL MODIFICATION PERFORMED ACCORDING TO INDOT SPECIFICATIONS 207 AND 215 MAY BE DONE IN LIEU OF THE ABOVE DENSITY AND PROOFROLL SPECIFICATIONS.

TANDEM DUMP TRUCK - GROSS WEIGHT 48,000 #
TRI-AXLE DUMP TRUCK - GROSS WEIGHT 68,000 #

B. AGGREGATE SUBBASE:

- GRADUATION - 1 TEST PER 1000 TONS OR 1 PER WEEK
- COMPACTION - 1 TEST PER 500 LF OF SINGLE LANE WIDTH

C. BITUMINOUS MATERIAL (BASE, INTERMEDIATE AND SURFACE):

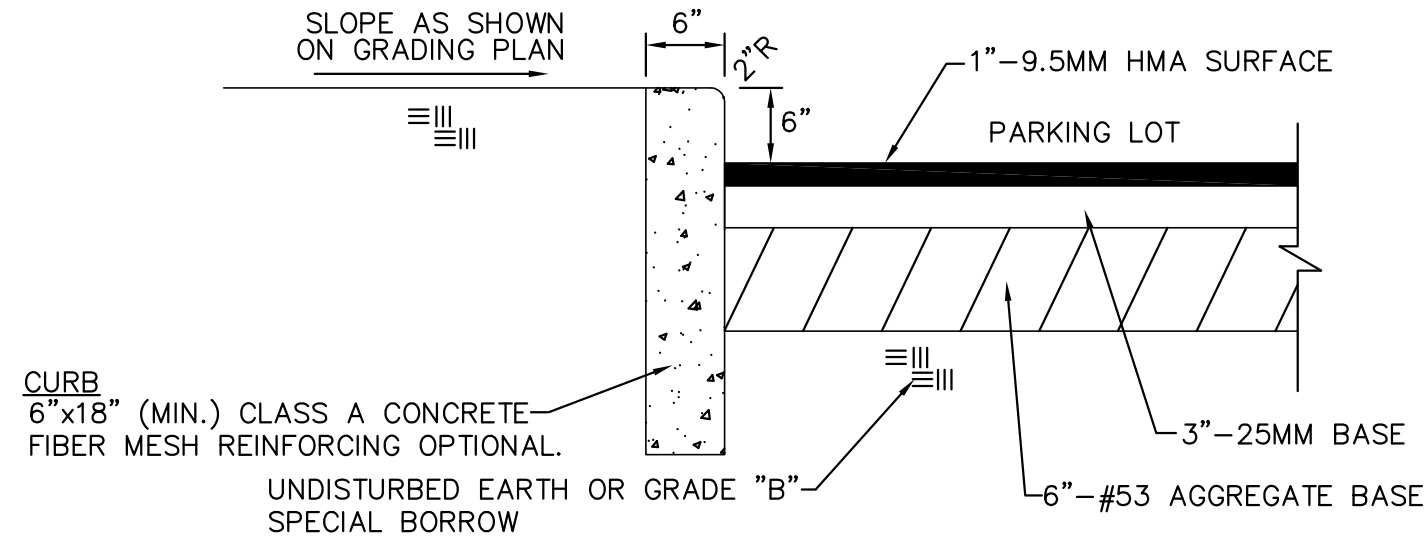
- ASPHALT EXTRACTION - 1 TEST PER EACH TYPE OF MATERIAL USED PER JOB TEST TO INCLUDE GRADATION, ASPHALT CONTENT, CRUSHED PARTICLE DETERMINATION AND DELETERIOUS DETERMINATION. TEST SHALL BE CERTIFIED PER INDOT CERTIFICATION REQUIREMENTS.
- DENSITY- THE TARGET DENSITY SHALL BE DETERMINED FROM A TEST STRIP CONSTRUCTED PER INDOT SPECIFICATIONS. THE TARGET DENSITY SHALL NOT BE LESS THAN 96% OF THE UNIT WEIGHT AT THE OPTIMUM BINDER CONTENT NDES AS DETERMINED BY THE MIX DESIGN. THE DENSITY OF EACH SUBLOT WILL BE THE AVERAGE OF FIVE TESTS. A SUBLOT SHALL BE 1000 LF OF SINGLE LANE WIDTH. BREAKDOWN ROLLER SHALL BE MINIMUM 10 TON OR APPROVED VIBRATORY.

D. CONCRETE FOR CURBING AND DRIVEWAYS:

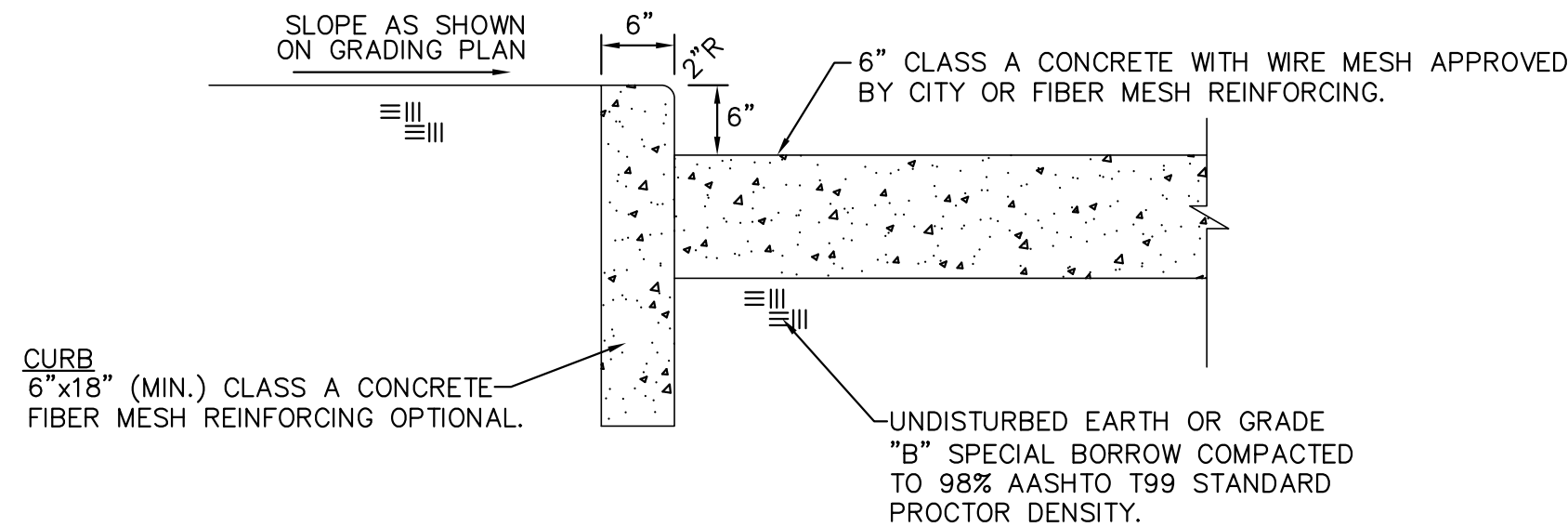
- AIR AND SLUMP - 1 TEST PER DAY FOR POURS OVER 20 CY OR MINIMUM 1 PER WEEK.
- COMPRESSIVE STRENGTH TESTS - AN ADEQUATE NUMBER OF CONCRETE TEST CYLINDERS SHOULD BE TAKEN TO ENSURE THAT PSI REQUIREMENTS OF THE CONCRETE SECTION ARE MET. A MINIMUM OF ONE SET OF TEST CYLINDERS PER WEEK SHALL PASS THESE REQUIREMENTS.
- CONCRETE STRENGTH SHALL BE A MINIMUM 4000 PSI BEFORE OPEN TO TRAFFIC.

E. CONCRETE FOR PAVEMENT - FREQUENCY OF TESTS SHALL BE IN ACCORDANCE WITH THE INDOT FREQUENCY TESTING MANUAL AS SET OUT IN THE SECTION TITLED "CONCRETE PAVEMENT AND STRUCTURE MATERIAL".

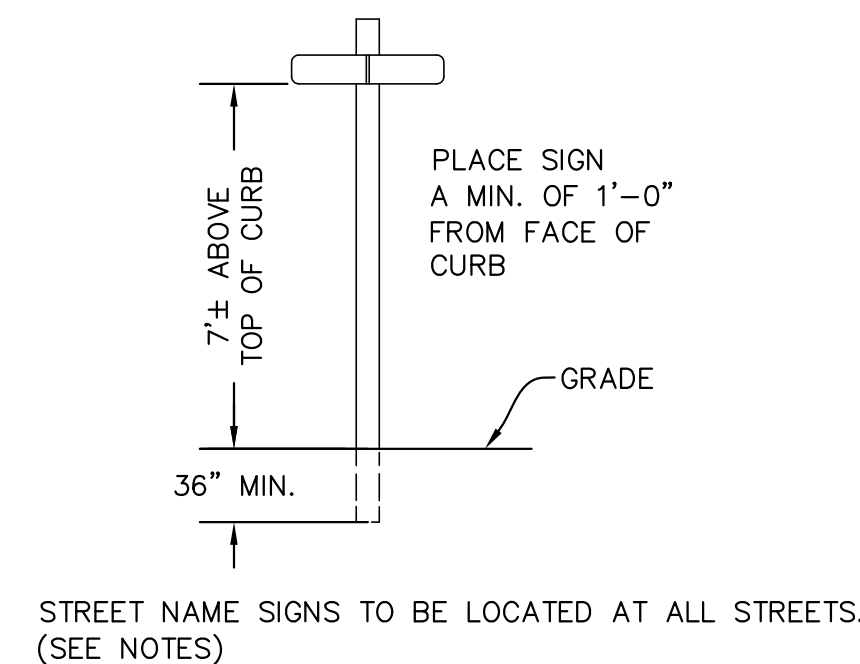
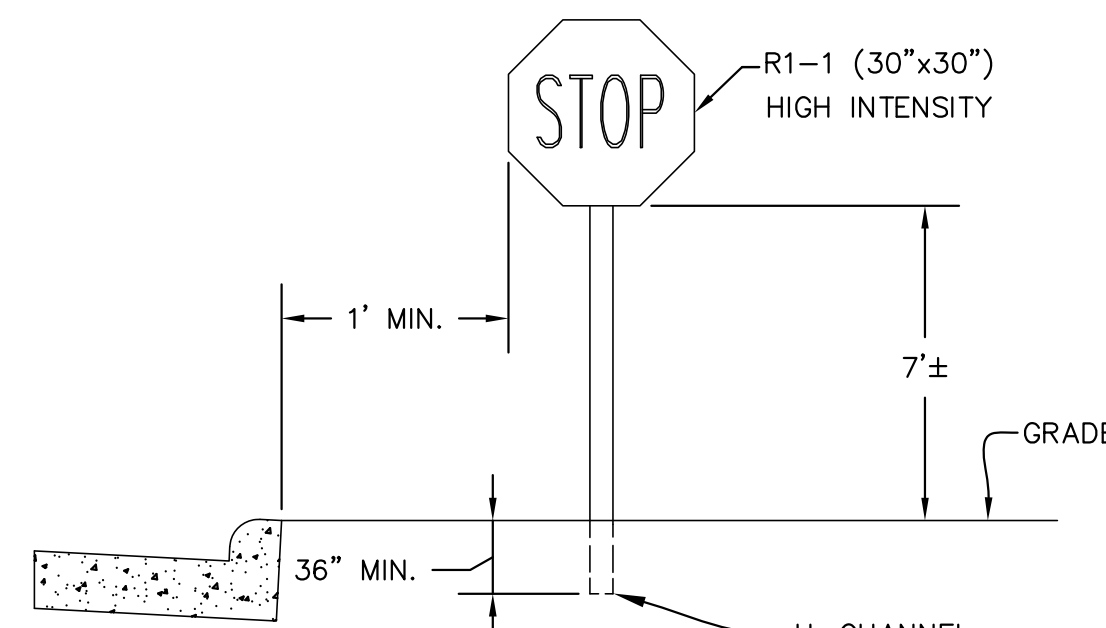
11 TYPICAL PARKING LOT AND CURB SECTION - ASPHALT
NOT TO SCALE



12 TYPICAL PARKING LOT AND CURB SECTION - CONCRETE
NOT TO SCALE

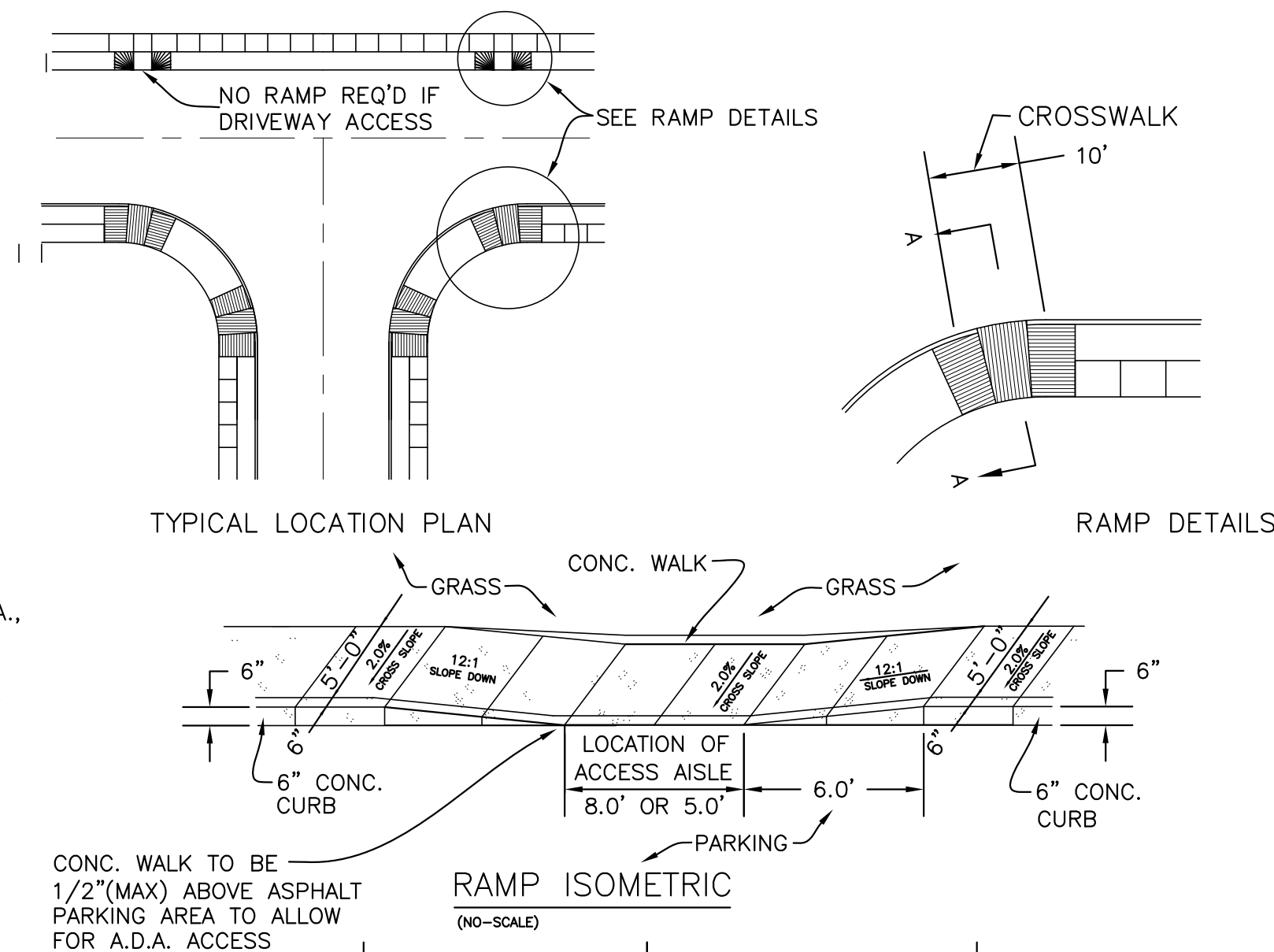


			PROJECT NAME	PROJECT SHEET NUMBER
				of
CITY OF DELPHI				
(800) 382-5544	HOLEY MOLEY	201 SOUTH UNION STREET DELPHI, INDIANA 46923	DATE	MARCH 2008
(765) 564-2345	COMMUNITY DEV.		SHEET	
(765) 564-2313	WASTEWATER DEPARTMENT		3	
(765) 564-3944	WATER WORKS		OF	
(765) 564-2234	FIRE DEPT.		12	
(765) 564-2345	POLICE DEPT.			
		PAVEMENT AND CURB		
		TYPICAL SECTIONS AND NOTES		



1. THE CONTRACTOR/DEVELOPER SHALL PROVIDE AND INSTALL ALL STREET NAME AND ROAD SIGNS PER CURRENT INDOT STANDARDS AND CITY OF DELPHI GUIDELINES AND DETAILS. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE CURRENT INDOTCD.
2. MATERIALS SHALL BE FREE OF BURRS, PITS AND BLEMISHES AND SHALL PRESENT A SMOOTH CLEAN SURFACE.
3. SIGN BLANKS SHALL MEET INDOT SPECIFICATIONS UNLESS OTHERWISE SPECIFIED.
4. ALL STREET SIGNS SHALL HAVE GREEN BACKGROUND WITH WHITE LETTERS/NUMBERS ON EXTRUDED ALUMINUM BLADES.
5. THE STREET NAME LETTERS TO BE ENGINEER GRADE: 9" BLADES WITH 6" LETTERS/NUMBERS ON ALL STREETS.
6. STOP SIGNS SHALL BE 30" HIGH INTENSITY.
7. SIGN BOLTS TO BE PER INDOT STANDARD SPECIFICATIONS. BOLTS ARE TO BE THEFT PROOF.
8. SPEED LIMIT SIGNS SHALL BE 24" X 30" HIGH INTENSITY OR ENGINEER GRADE.
9. SIGN POST SHALL BE DRIVEN INTO THE GROUND. NO EXCAVATION SHALL BE DONE TO PLACE SIGNS.

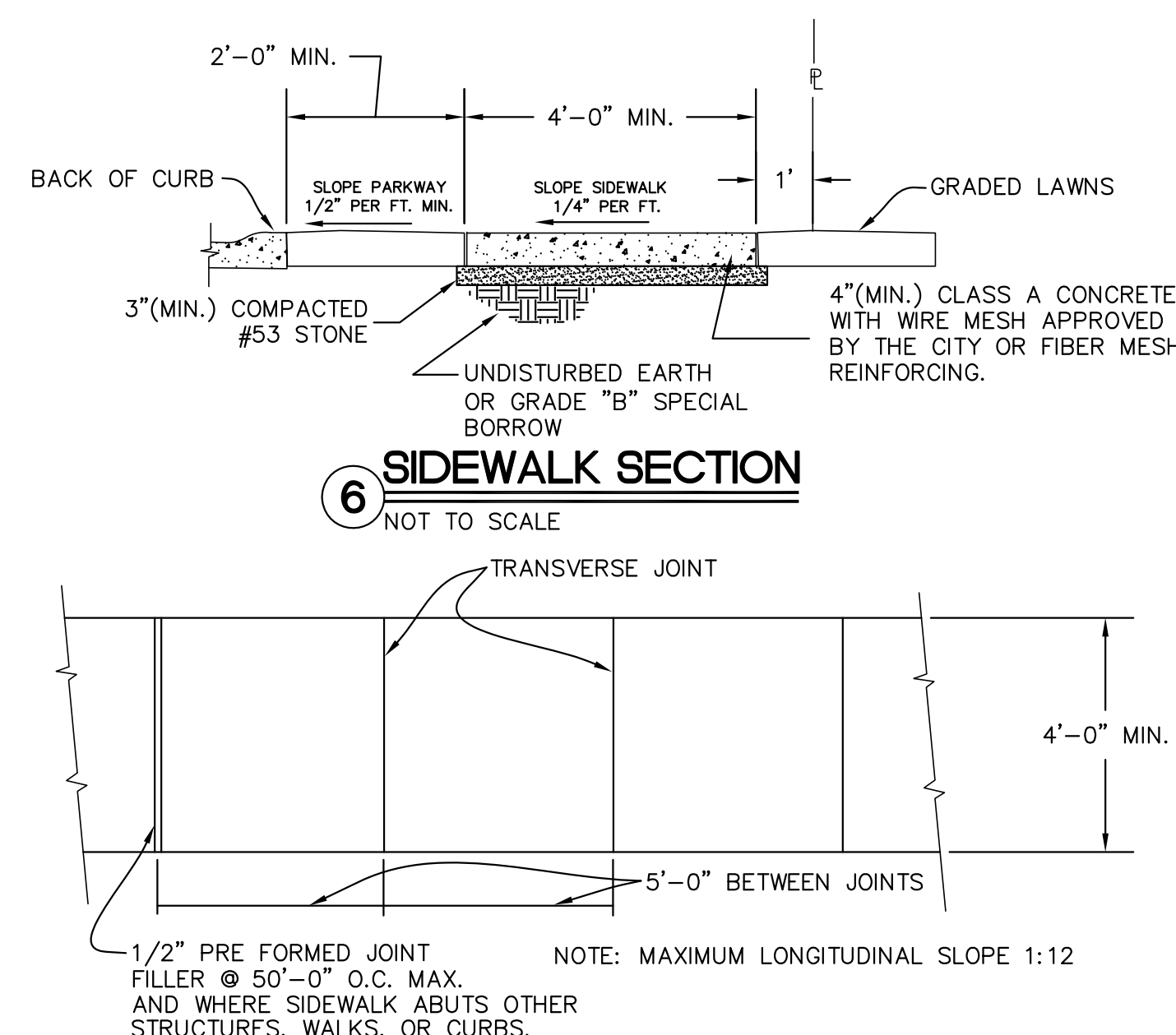
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2 NOT TO SCALE

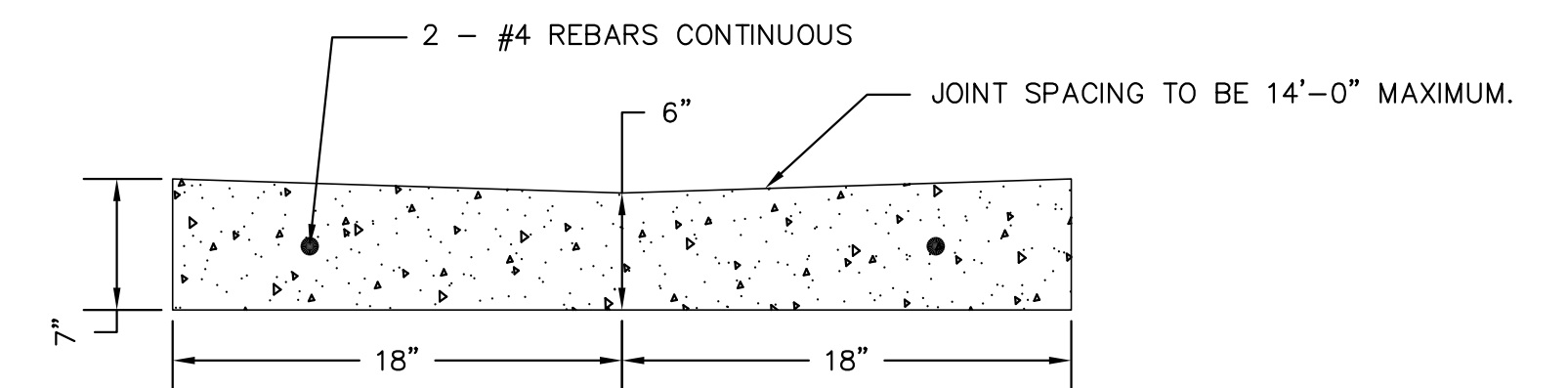


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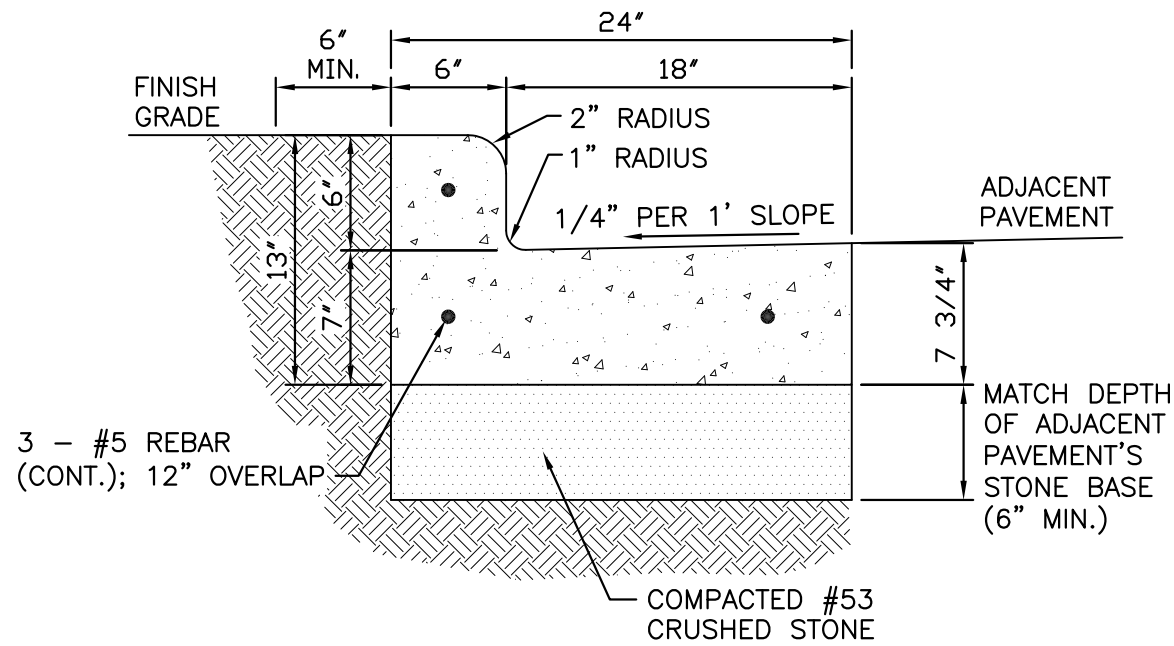
NOT TO SCALE

NOT TO SCALE



(TYPE II OR TYPE III CURBS)
NOT TO SCALE

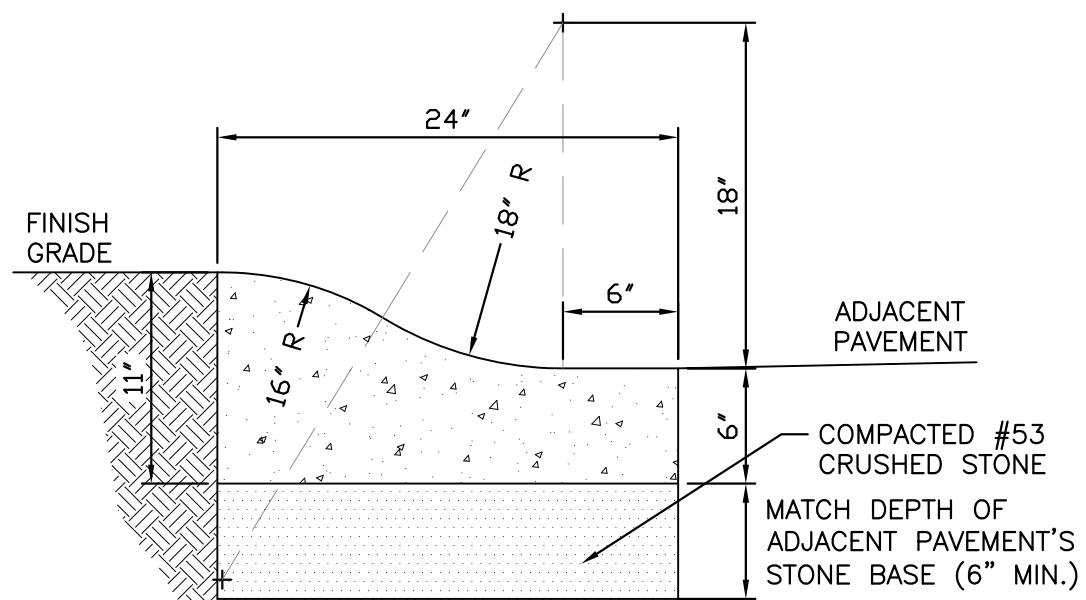
PROJECT NAME		PROJECT SHEET NUMBER	
		of	
<h1>PLAN OF DELPHI</h1>			
CITY OF DELPHI DEPT. OF PUBLIC WORKS ENGINEER	201 SOUTH UNION STREET DELPHI, INDIANA 46923		DATE MARCH 2008
	CONCRETE PAVEMENT, SIDEWALK, DRIVEWAY TYPICAL SECTIONS AND NOTES		SHEET 4 OF 12



GENERAL NOTES:
 1. INSTALL PER LATEST ADDITION OF INDOT SPECIFICATIONS, AT TIME OF CONSTRUCTION.
 2. EXPANSION JOINTS SHALL BE PLACED AT THE ENDS OF ALL RETURNS AND AT INTERVALS OF 500 FEET FOR SLIP CURBS AND AT INTERVALS OF 40 FEET FOR HAND-FORMED CURBS. EXPANSION JOINTS SHOULD ALSO BE PLACED AT ALL PC's, PT's INTERSECTIONS AND AT THE END AND/OR BEGINNING OF A DAYS POUR. CONTROL JOINTS SHALL BE PLACED EVERY 10' O.C.

1 NEW MONOLITHIC CURB + GUTTER DETAIL

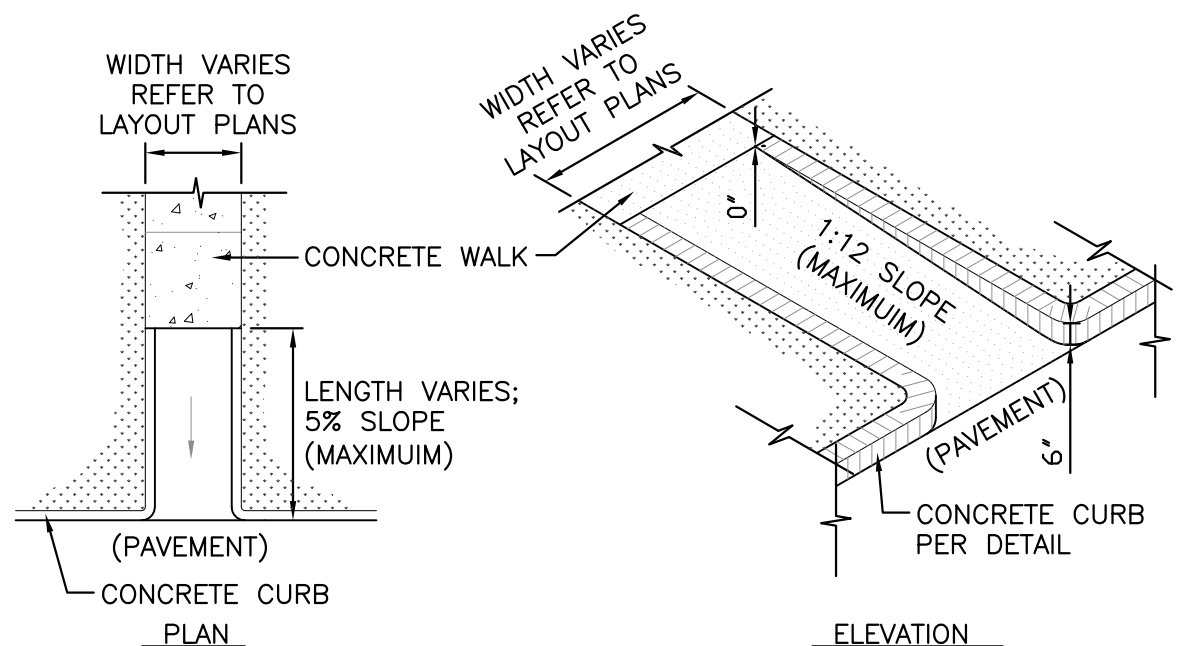
NOT TO SCALE



GENERAL NOTES:
 1. INSTALL PER LATEST ADDITION OF INDOT SPECIFICATIONS, AT TIME OF CONSTRUCTION.
 2. EXPANSION JOINTS SHALL BE PLACED AT THE ENDS OF ALL RETURNS AND AT INTERVALS OF 500 FEET FOR SLIP CURBS AND OF INTERVALS OF 40 FEET FOR HAND-FORMED CURBS. EXPANSION JOINTS SHOULD ALSO BE PLACED AT ALL PC's, PT's INTERSECTIONS AND AT THE END AND/OR BEGINNING OF A DAYS POUR. JOINTS SHALL BE PLACED EVERY 20 FEET.

2 NEW ROLLED CURB DETAIL

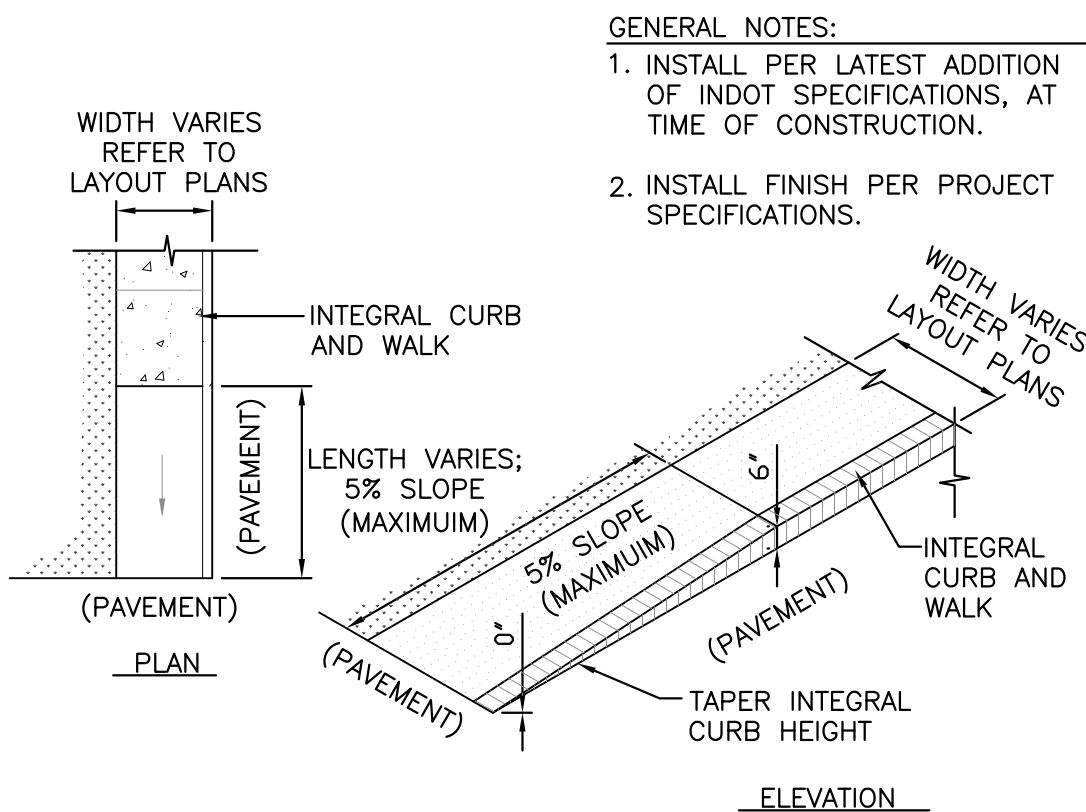
NOT TO SCALE



GENERAL NOTES:
 1. INSTALL PER LATEST ADDITION OF INDOT SPECIFICATIONS, AT TIME OF CONSTRUCTION.
 2. INSTALL FINISH PER PROJECT SPECIFICATIONS.

3 NEW CONCRETE RAMP DETAIL (TAPERED END OF WALK, RETURNED CURB)

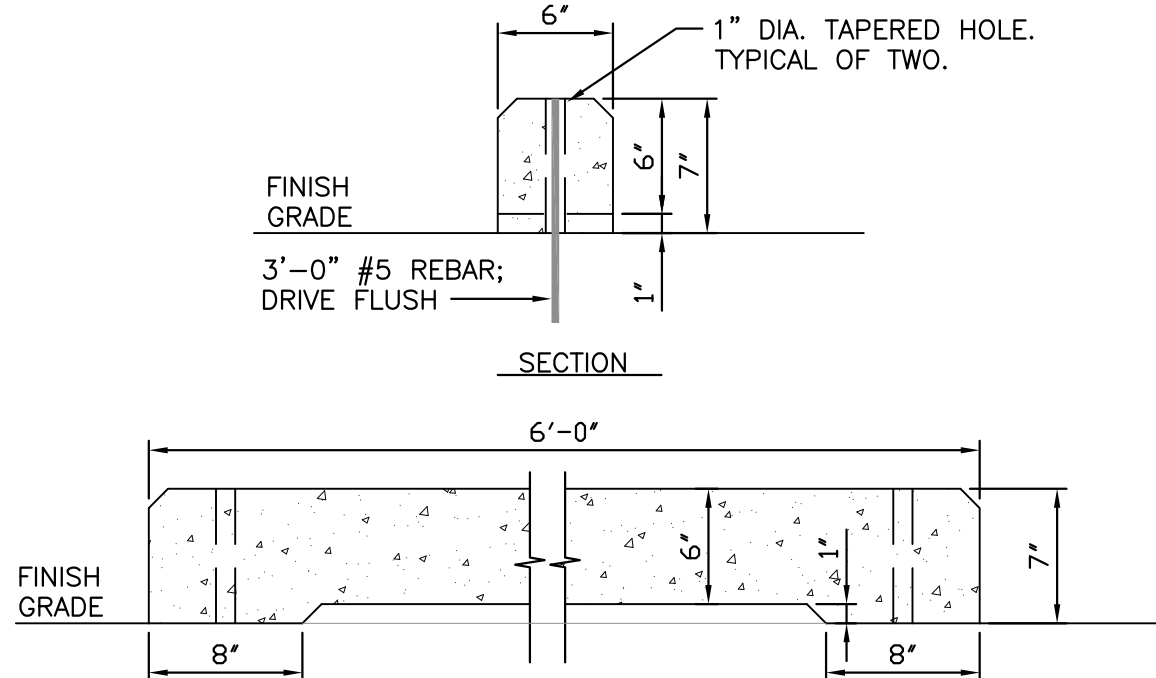
NOT TO SCALE



GENERAL NOTES:
 1. INSTALL PER LATEST ADDITION OF INDOT SPECIFICATIONS, AT TIME OF CONSTRUCTION.
 2. INSTALL FINISH PER PROJECT SPECIFICATIONS.

4 NEW CONCRETE RAMP DETAIL (TAPERED END OF WALK, INTEGRAL CURB)

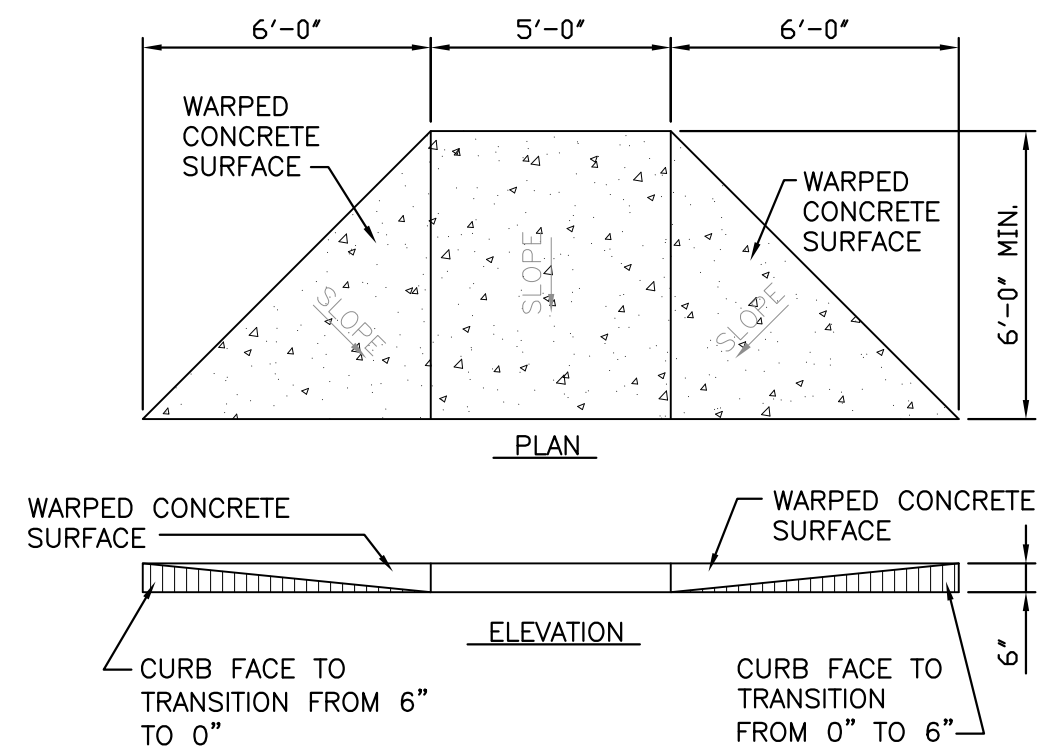
NOT TO SCALE



GENERAL NOTES:
 1. CONCRETE TO BE A MINIMUM 3500 PSI.

5 NEW PARKING BUMPER DETAIL

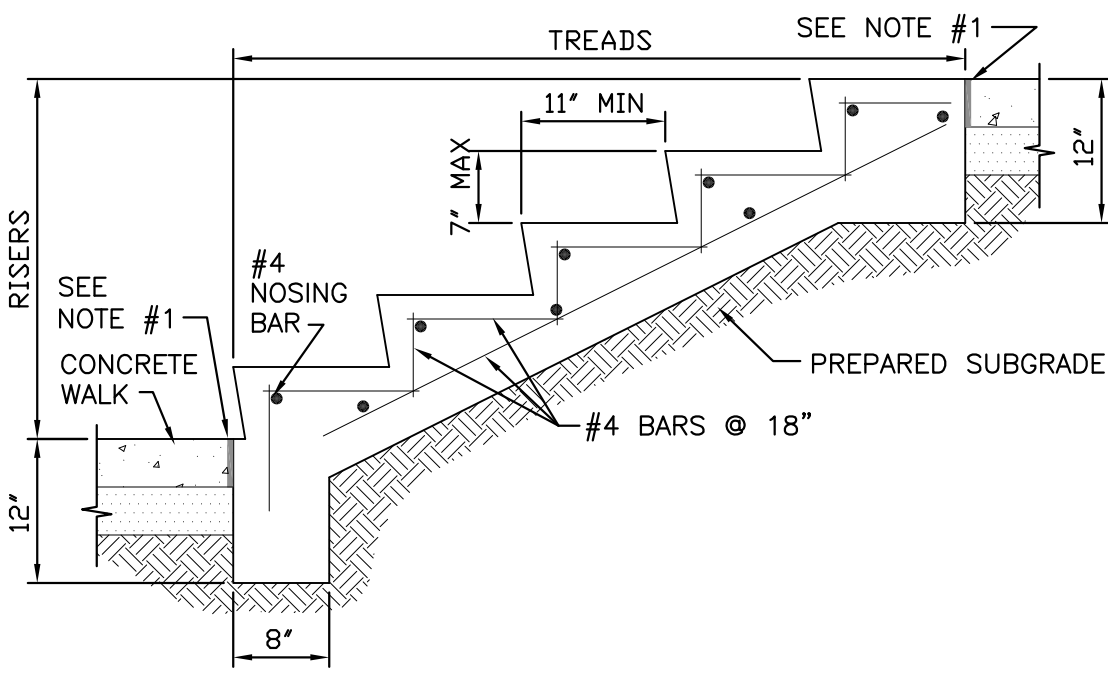
NOT TO SCALE



GENERAL NOTES:
 1. INSTALL PER LATEST ADDITION OF INDOT SPECIFICATIONS, AT TIME OF CONSTRUCTION.
 2. INSTALL FINISH PER PROJECT SPECIFICATIONS.

6 NEW CONCRETE RAMP DETAIL (FLARED END)

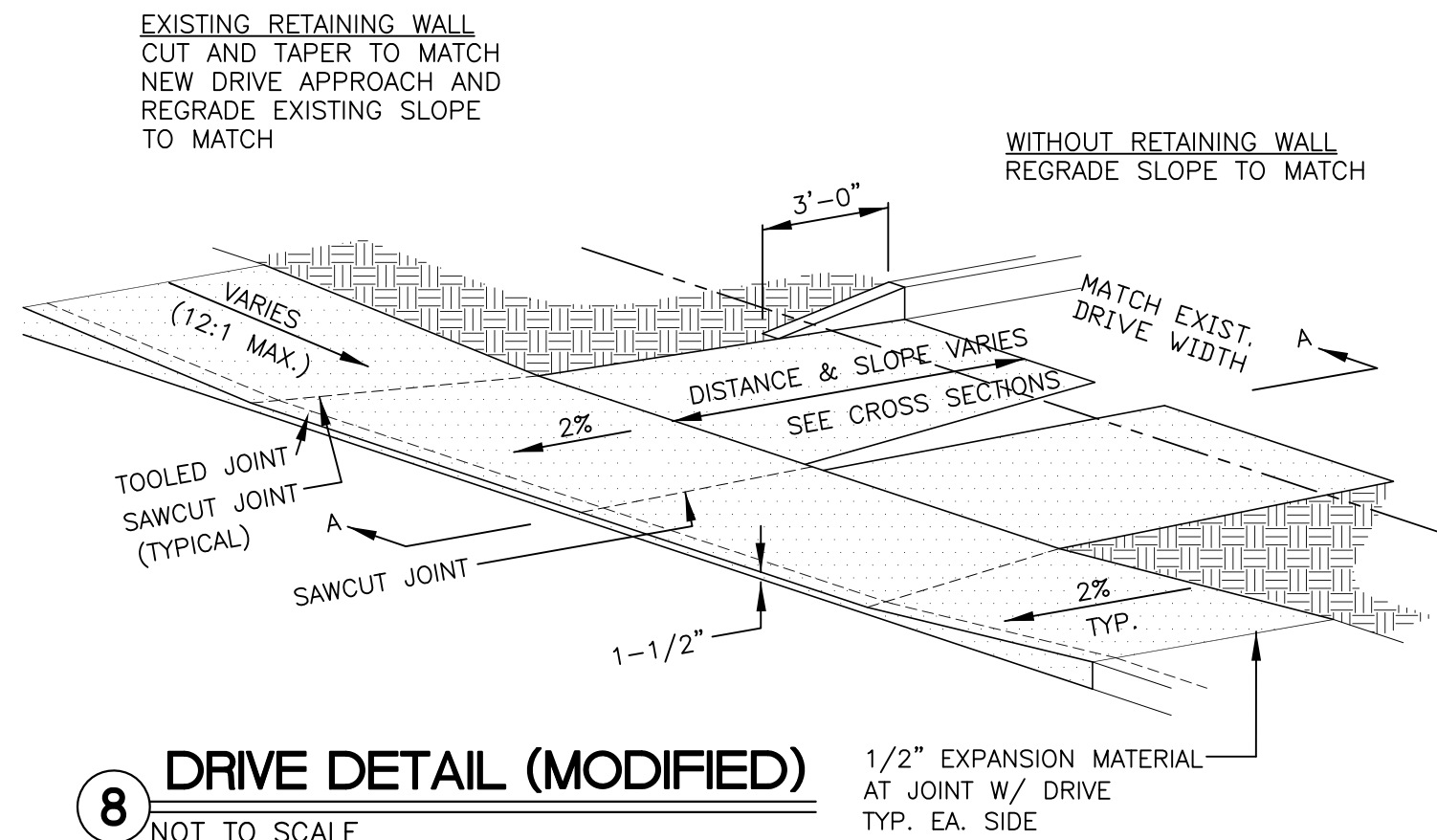
NOT TO SCALE



GENERAL NOTES:
 1. CONCRETE SHALL BE 4000 PSI.
 2. WHERE CONCRETE WALKS ABUT STRUCTURE USE 1/2" PRE-FORMED JOINT SEALER AND 1" DEEP MASTIC JOINT SEALER.
 3. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL DETAILS
 4. NUMBER OF RISERS MAY VARY — SEE GRADING PLAN FOR THE NUMBER AND LOCATION OF STEPS ON GRADE.
 5. HANDRAIL (IF REQUIRED) TO BE CONSTRUCTED PER INDIANA CODE REQUIREMENTS AND ADA SPECIFICATIONS.

7 NEW CONCRETE STEPS DETAIL

NOT TO SCALE



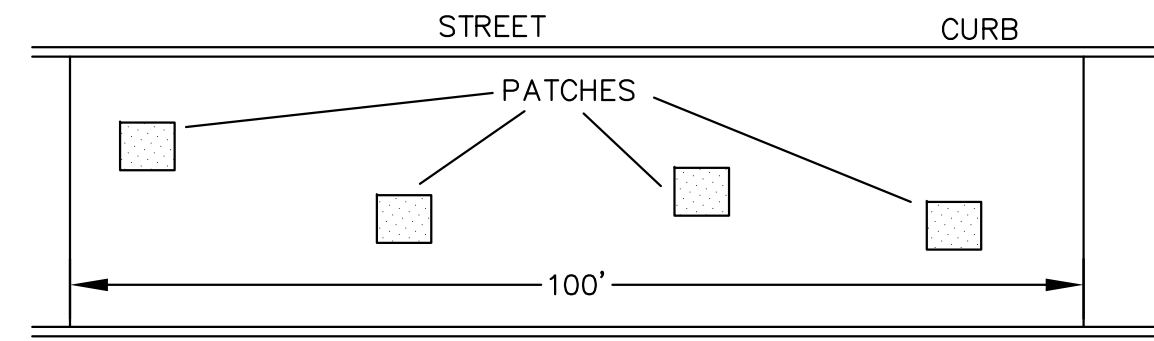
8 DRIVE DETAIL (MODIFIED)

NOT TO SCALE

PROJECT NAME	PROJECT SHEET NUMBER
	of

CITY OF DELPHI

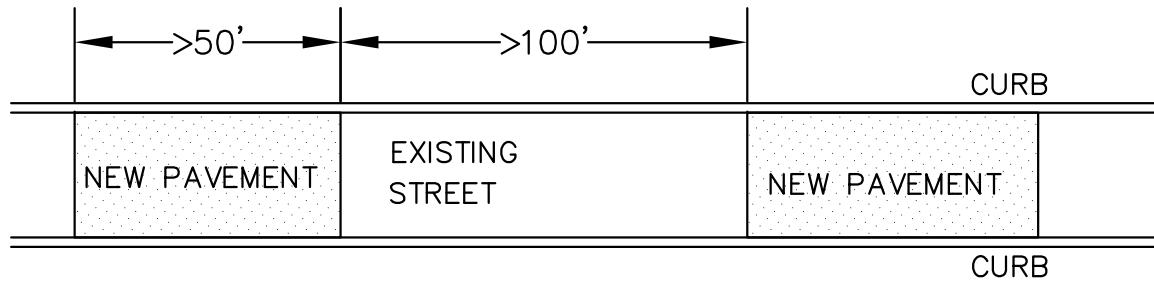
(800) 382-5544 HOLEY MOLEY	201 SOUTH UNION STREET	DATE
(765) 564-2345 COMMUNITY DEV.	DELPHI, INDIANA 46923	MARCH 2008
(765) 564-2313 WASTEWATER DEPARTMENT		SHEET
(765) 564-3944 WATER WORKS	PAVEMENT AND CURB	5
(765) 564-2234 FIRE DEPT.	TYPICAL SECTIONS AND NOTES	OF
(765) 564-2345 POLICE DEPT.		12



MULTIPLE CUTS SHALL BE DEFINED AS CITY STREET OR ALLEY, ASPHALT OR CONCRETE, THAT HAVE THE FOLLOWING CONDITIONS:

- FOUR (4) OR MORE PATCHES PER 100 LINEAL FEET OF ROADWAY WITHIN A ONE (1) YEAR PERIOD OF TIME, AND
- AREA CUT IS GREATER THAN 64 S.F. IN 100 LINEAL FEET OF ROADWAY WITHIN A ONE (1) YEAR PERIOD OF TIME.

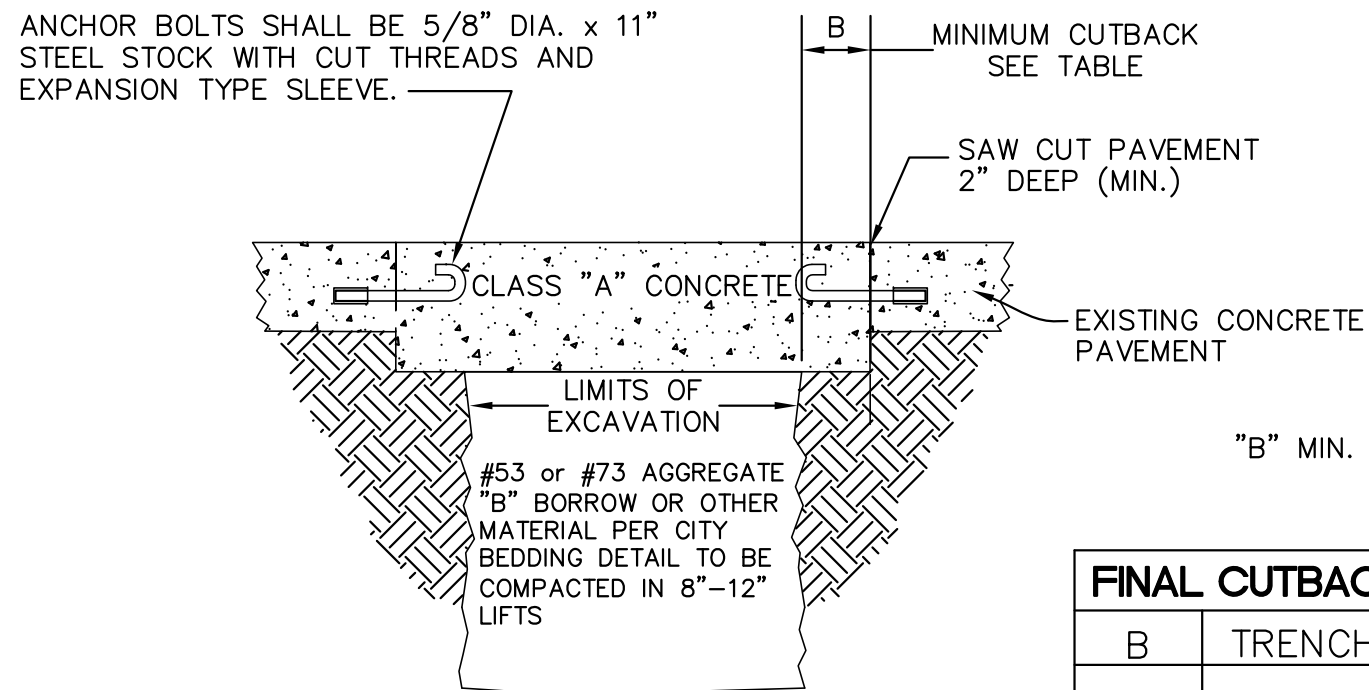
MULTIPLE CUTS TO BE RESTORED AS FOLLOWS:



1. NEW PAVEMENT AREAS SHALL NOT HAVE GAPS OF LESS THAN 100 FEET. MINIMUM LENGTH OF NEW PAVEMENT SHALL BE 50 FEET.

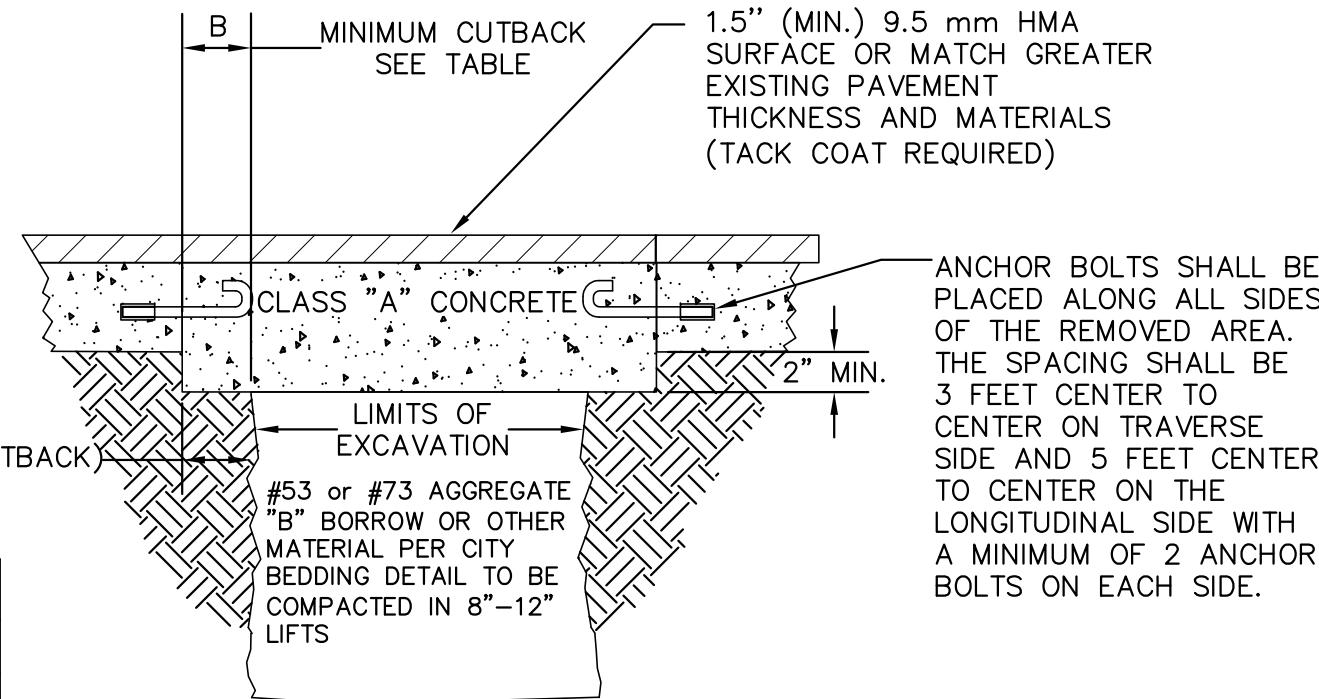
2. THE DELPHI BOARD OF WORKS SHALL HAVE THE AUTHORITY TO NEGOTIATE A PAYMENT FROM THE UTILITY COMPANY IN LIEU OF RESURFACING. THE PAYMENT SHALL BE BASED UPON THE UNIT PRICE FOR ASPHALT FROM THE CITY'S MOST RECENT RESURFACE CONTRACT AND THE AREA THAT WOULD HAVE TO BE RESURFACED ACCORDING TO THIS STANDARD. THE PAYMENT SHALL BE PRORATED ACCORDING TO THE CITY'S RESURFACING SCHEDULE AT A RATE OF 10% PER YEAR. FOR EXAMPLE, IF THE STREET IS SCHEDULED TO BE RESURFACED IN ONE YEAR, ONLY 10% WILL BE CHARGED, IN 2 YEARS ONLY 20%, ETC. THIS PAYMENT OPTION SHALL NOT APPLY TO RECENTLY RESURFACED STREETS.

1 CITY OF DELPHI METHOD FOR REPLACING MULTIPLE CUTS

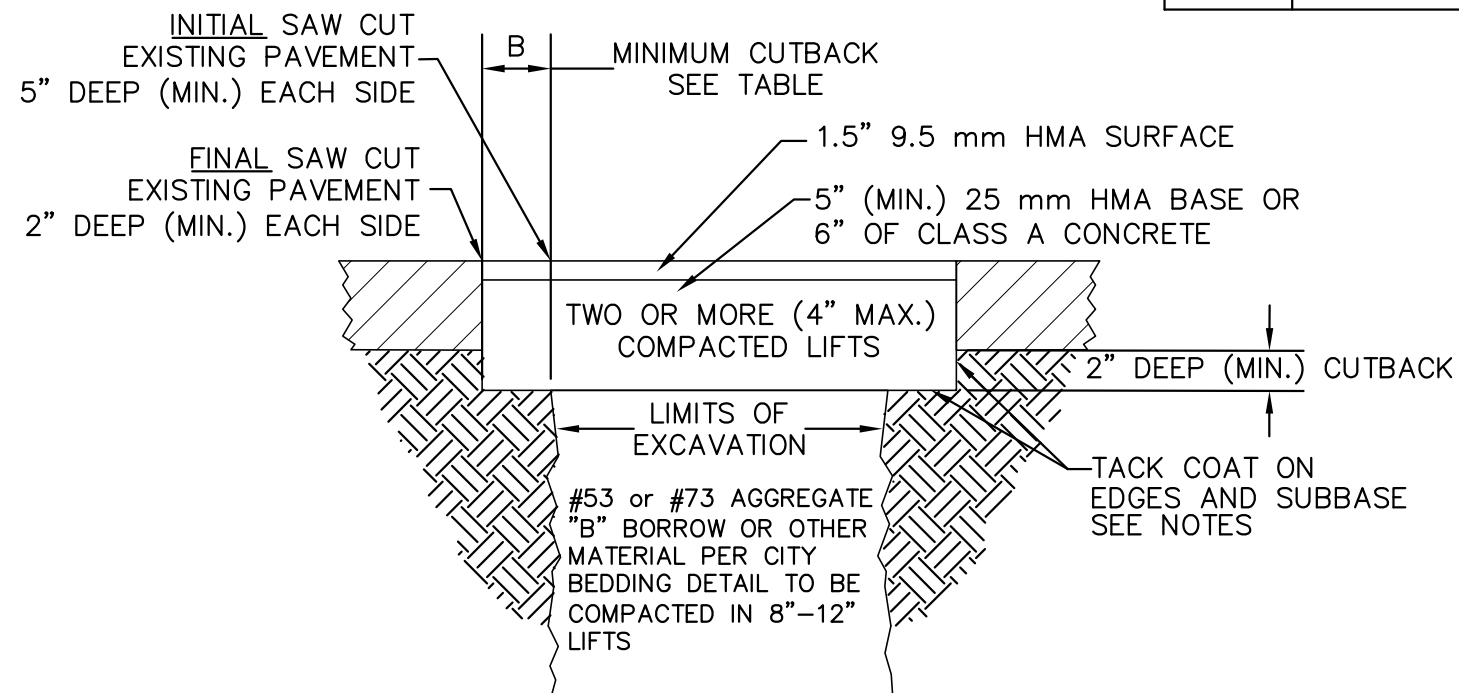


CONCRETE PAVEMENT REPAIR

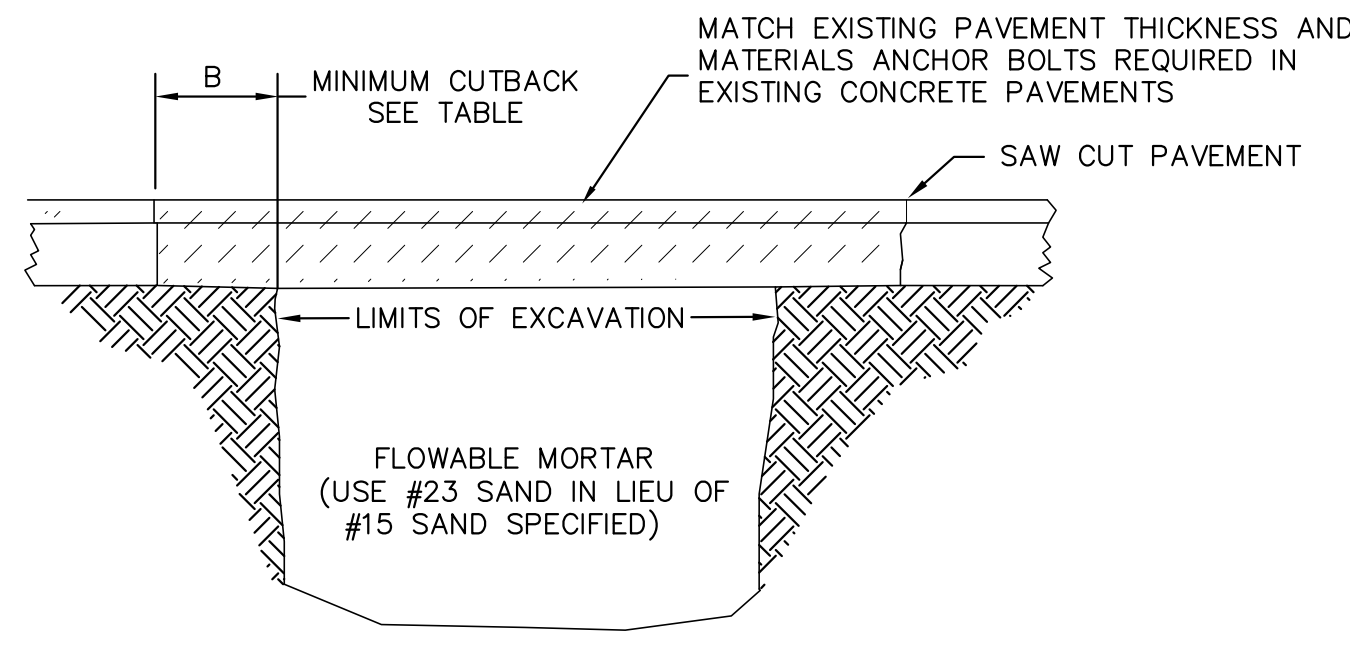
FINAL CUTBACK TABLE	
B	TRENCH WIDTH
6"	3'-0" OR LESS
9"	3'-1" TO 5'-0"
12"	5'-1" OR GREATER



ASPHALT OVER CONCRETE
PAVEMENT REPAIR

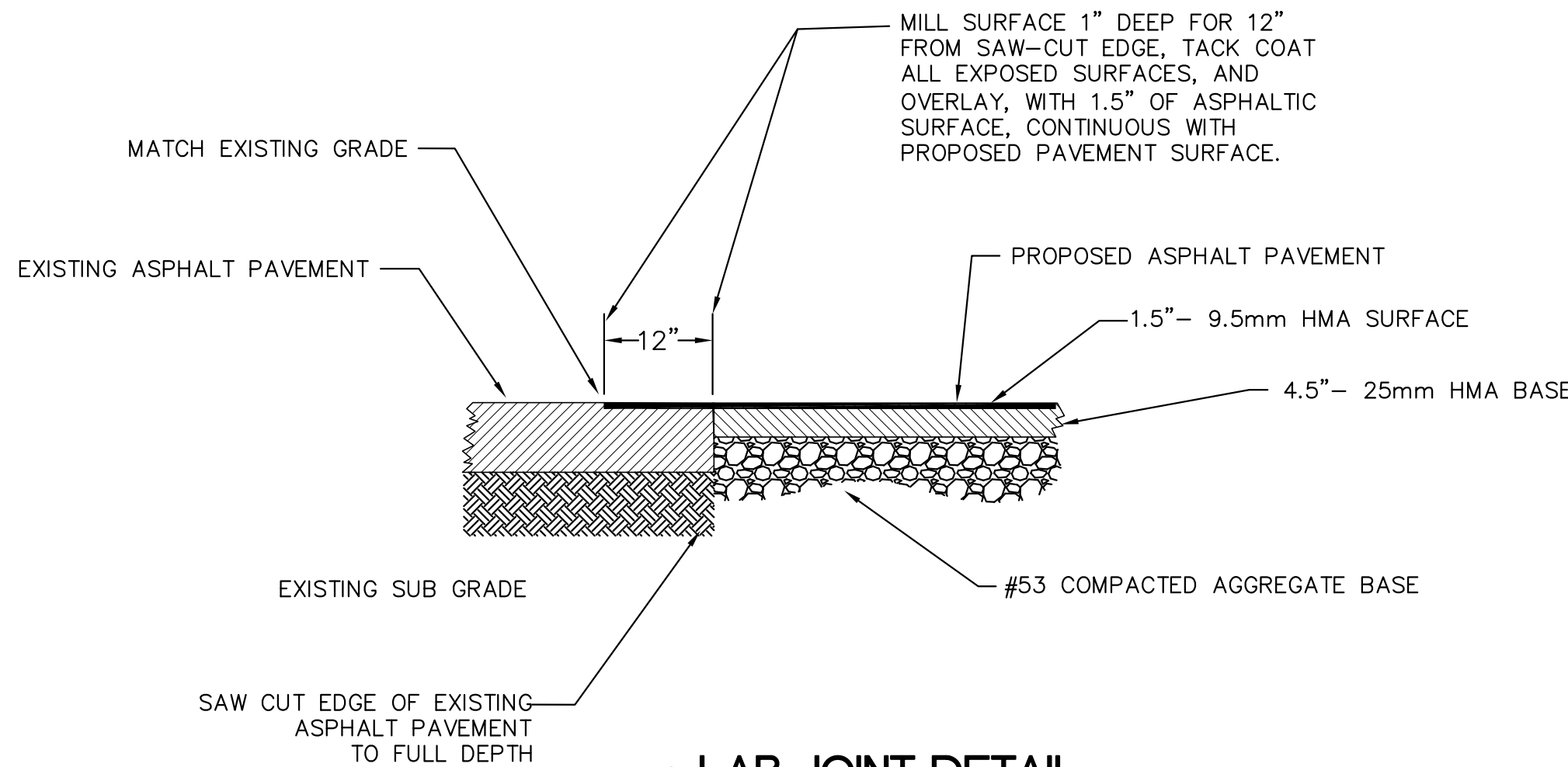


ASPHALT PAVEMENT REPAIR

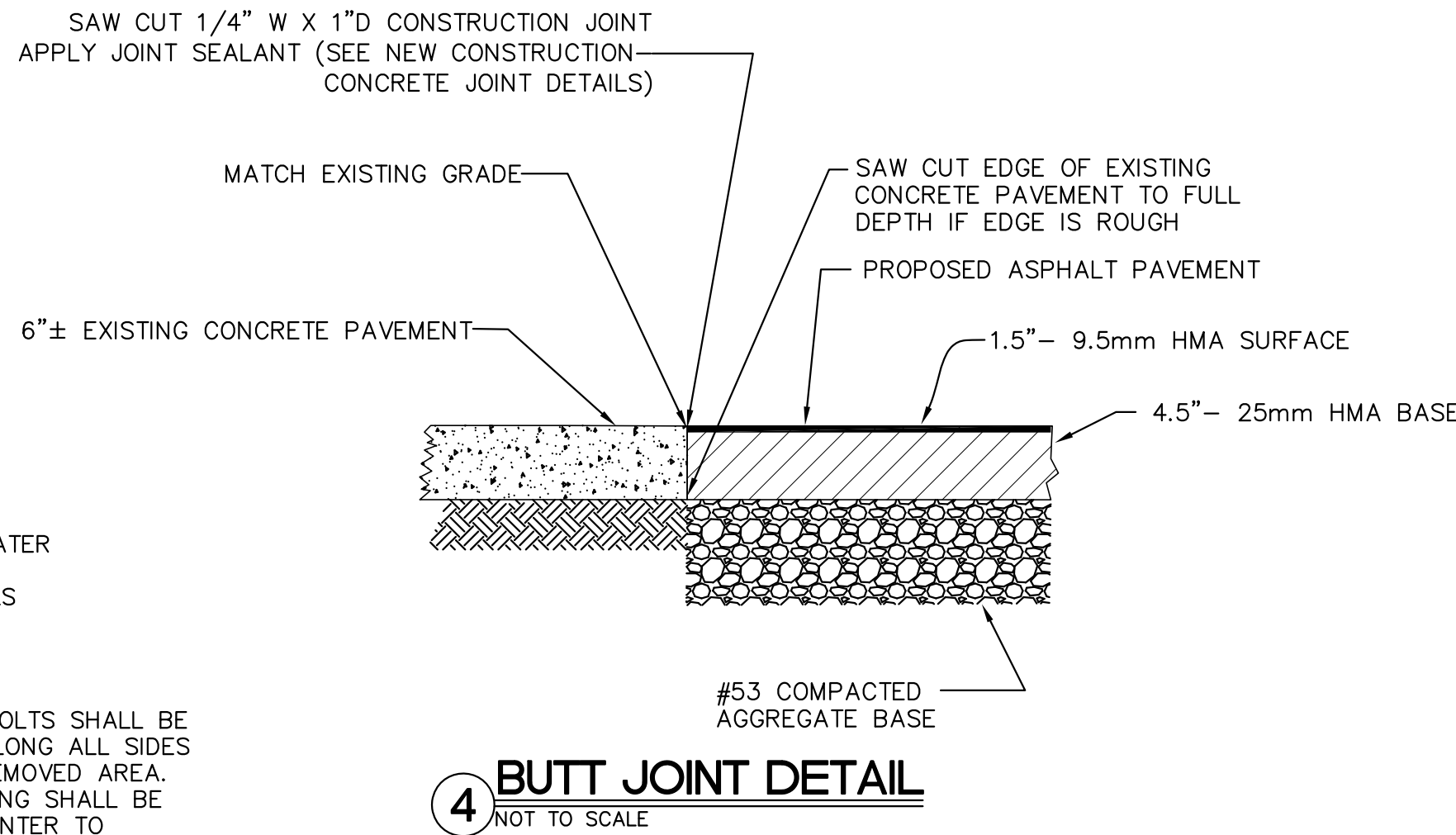


PAVEMENT REPAIR
WITH FLOWABLE MORTAR BACKFILL

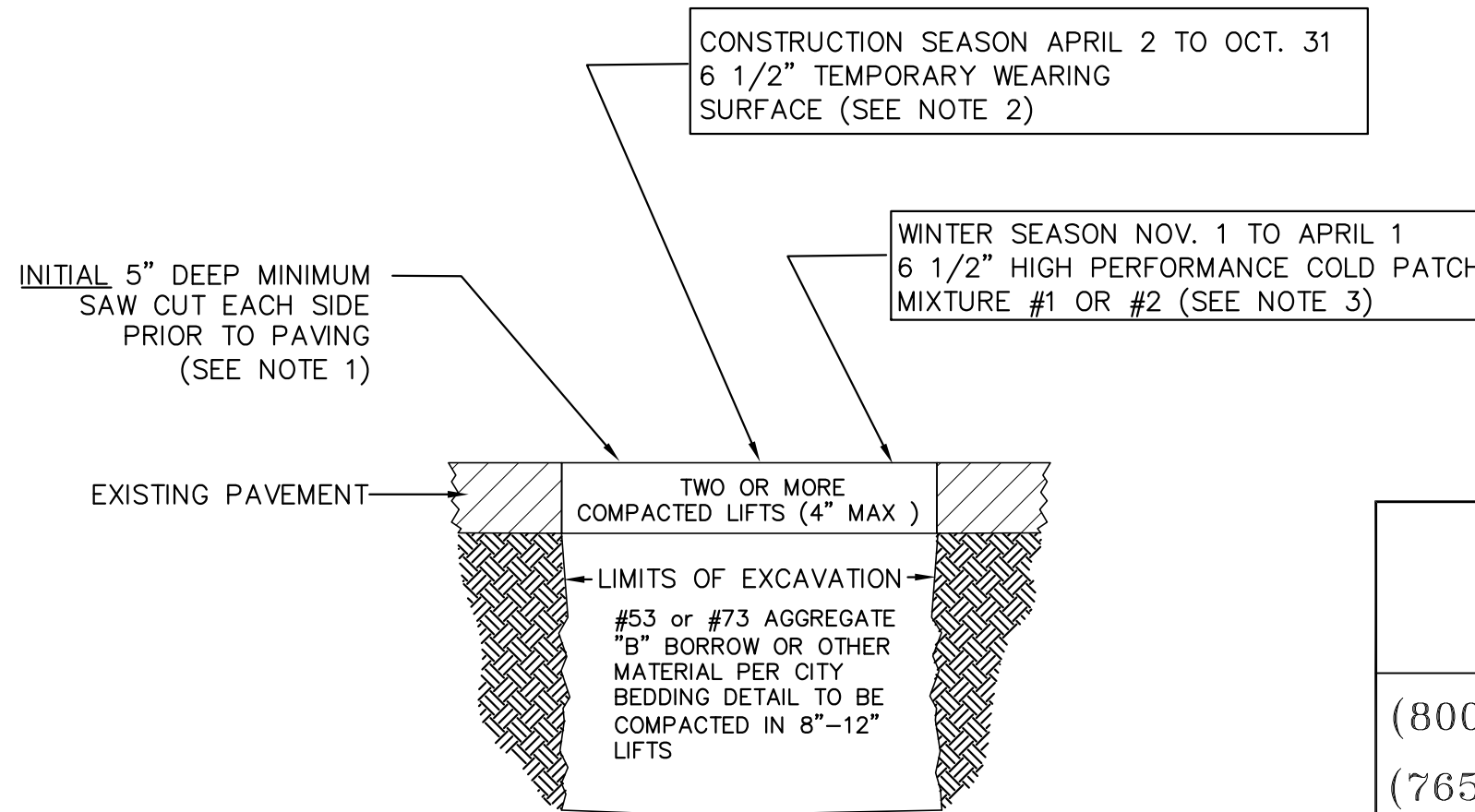
(FLOWABLE MORTAR SHALL NOT BE USED WHEN TEMPERATURES ARE BELOW 38° F)
***USE OF FLOWABLE MORTAR REQUIRES PRIOR APPROVAL OF DELPHI BOARD OF WORKS.



3 LAP JOINT DETAIL
NOT TO SCALE



4 BUTT JOINT DETAIL
NOT TO SCALE



5 TEMPORARY ASPHALT REPAIR
NOT TO SCALE

6 PAVEMENT RESTORATION NOTES

GENERAL:

- MAINTENANCE OF ANY STREET RESTORATION OR REPAIR SHALL BE THE RESPONSIBILITY OF THE INDIVIDUAL UTILITY OR DEVELOPER AUTHORIZED TO MAKE SUCH REPAIR UNTIL THE STREET HAS BEEN RESURFACED.

PERMANENT PAVEMENT RESTORATION:

- PERMANENT RESTORATION SHALL COMMENCE IMMEDIATELY UPON COMPLETION OF UTILITY WORK AND BE COMPLETE WITHIN (10) WORKING DAYS UNLESS THE DELPHI BOARD OF WORKS GRANTS A LONGER PERIOD. REQUEST FOR EXTENSION SHALL BE IN WRITTEN FORM AND ACCOMPANIED WITH A REPAIR SCHEDULE, INVENTORY OF EXISTING TEMPORARY RESTORATIONS, AND STATEMENT INDICATING THE REASON(S) FOR THE EXTENSION.
- EXISTING PAVEMENT SAW CUTS SHALL BE IN STRAIGHT LINES AND ARE PERPENDICULAR TO THE CURB (WHERE POSSIBLE). EDGES OF BROKEN PAVEMENT SHALL BE SQUARED OFF TO PROVIDE NEAT EDGE FOR PAVING.
- ASPHALT SHALL BE PLACED USING PROFESSIONAL MEANS TO ESTABLISH A HARD, SMOOTH, EVEN GRADED SURFACE. COMPACTION SHALL BE DONE THOROUGHLY AND UNIFORMLY BY A MACHINE ROLLER. AREAS TOO SMALL FOR MACHINE ROLLING SHALL BE COMPACTED BY HAND WITH MECHANICAL COMPACTION EQUIPMENT UPON PRIOR APPROVAL OF THE CITY. ALL COURSES SHALL BE INITIALLY ROLLED WITH THE ROLLER TRAVELING PARALLEL TO THE CENTERLINE OF THE PAVEMENT BEGINNING AT EACH EDGE AND WORKING TOWARD THE CENTER. ALL ROLLING AND TAMPING OPERATIONS SHALL BE COMPLETED PRIOR TO ASPHALT COOLING TO BELOW 180°F.
- PRIOR TO TACK COATING SUBBASE AND EDGES, THE EXISTING SURFACE SHALL BE FREE OF IRREGULARITIES TO PROVIDE A REASONABLY SMOOTH AND UNIFORM SURFACE TO RECEIVE TREATMENT. THE EDGES OF EXISTING PAVEMENT SHALL BE CLEANED TO PERMIT ADHESION. TACK COAT SHALL NOT BE APPLIED TO WET SURFACES OR WHEN THE AIR TEMPERATURE IS BELOW 45°F. TACK COAT MAY BE ROLLED, BRUSHED OR MOPPED. ALL EXCESS TACK COAT SHALL BE SQUEEGEED FROM THE SURFACE.
- ALL PAVEMENT RESTORATION MATERIALS TO BE PER INDOT "STANDARD SPECIFICATIONS", 1999 EDITION.

TEMPORARY PAVEMENT REPAIR:

- EXISTING PAVEMENT INITIAL SAW CUT TO BE 5" MINIMUM DEPTH TO OBTAIN STRAIGHT LINES. PERPENDICULAR FROM THE CURB EDGE AND NEAT EDGE FOR PAVING. EDGES OF BROKEN PAVEMENT SHALL BE SQUARED OFF AND TRIMMED TO NEAT STRAIGHT LINES.
- TEMPORARY PAVEMENT MATERIAL IS TO BE 6 1/2 INCHES THICK HOT MIX ASPHALT. ASPHALT COLD PATCH, BAG ASPHALT AND CRUSH STONE ARE UNACCEPTABLE FOR USE. THE USE OF STEEL STREET PLATES MUST BE REQUESTED IN WRITTEN FORM AND ACCOMPANIED WITH A REPAIR SCHEDULE, INVENTORY OF EXISTING TEMPORARY RESTORATIONS, AND STATEMENT INDICATING THE REASON(S) FOR USE OF PLATES.
- DURING WINTER SEASON WHEN THE PERMANENT PATCH CANNOT BE COMPLETED WITHIN 10 WORKING DAYS (NOVEMBER 1 THRU APRIL 14), IF HOT MIX ASPHALT IS NOT AVAILABLE, USE INDOT APPROVED "HIGH PERFORMANCE COLD PATCH" OR EQUAL INDOT APPROVED MATERIAL.
HIGH PERFORMANCE COLD PATCH MIXTURE #1 (UPM), IS FOR USE IN WET AND COLD CONDITIONS AND WORKABLE AT TEMPERATURES AS LOW AS -15°F.
HIGH PERFORMANCE COLD PATCH MIXTURE #2 (CM300), IS FOR USE IN WET AND COLD CONDITIONS AND WORKABLE AT TEMPERATURES AS LOW AS 32°F.
- ALL MATERIALS ARE TO BE COMPACTED TO FORM A FIRM AND SMOOTH TRANSITION BETWEEN OLD AND NEW SURFACE GRADE. DO NOT APPLY HOT MIX ASPHALT ON A WET SURFACE.
- UPON COMPLETION OF BACKFILLING, TEMPORARY PAVEMENT ON STREETS SHALL BE PLACE BY THE END OF WORK DAY.
- TEMPORARY STREET RESTORATION IS INTENDED TO BE AN INTERIM MEASURE UNTIL CONDITIONS ALLOW FOR PERMANENT RESTORATION OF THE STREET. THE CITY REALIZES THAT AT TIMES, TEMPORARY RESTORATION IS NECESSARY, SUCH AS, DURING THE WINTER SEASON WHEN THE ASPHALT PLANTS ARE CLOSED AND WHEN FREEZING TEMPERATURES MAKE PERMANENT RESTORATION NOT FEASIBLE OR WHEN PERMIT WORK PRECEDES CITY STREET RECONSTRUCTION OR REHABILITATION. PERMIT HOLDERS ARE TO MINIMIZE THE USE OF TEMPORARY RESTORATIONS WHEN POSSIBLE. ANY WORK UNDERTAKEN BEFORE NOVEMBER 1 SHALL BE PERMANENTLY RESTORED BEFORE THE FALL ASPHALT PLANT CLOSINGS. ONLY WORK UNDERTAKEN ON OR AFTER NOVEMBER 1 MAY BE CARRIED OVER TO PERMANENT RESTORATION IN THE FOLLOWING SPRING SEASON ALL TEMPORARY RESTORATION PLACED DURING THE WINTER SEASON MUST BE PERMANENTLY RESTORED WITHIN FOUR (4) WEEKS OF SPRING ASPHALT PLANT OPENINGS, BUT NO LATER THAN MAY 15TH. THE DELPHI BOARD OF WORKS MAY GRANT EXTENSIONS BEYOND MAY 15TH FOR PERMANENT RESTORATIONS WHEN REQUESTED IN WRITING AND ACCOMPANIED WITH A REPAIR SCHEDULE, INVENTORY OF EXISTING TEMPORARY RESTORATIONS, AND STATEMENT INDICATING THE REASON(S) FOR THE EXTENSION

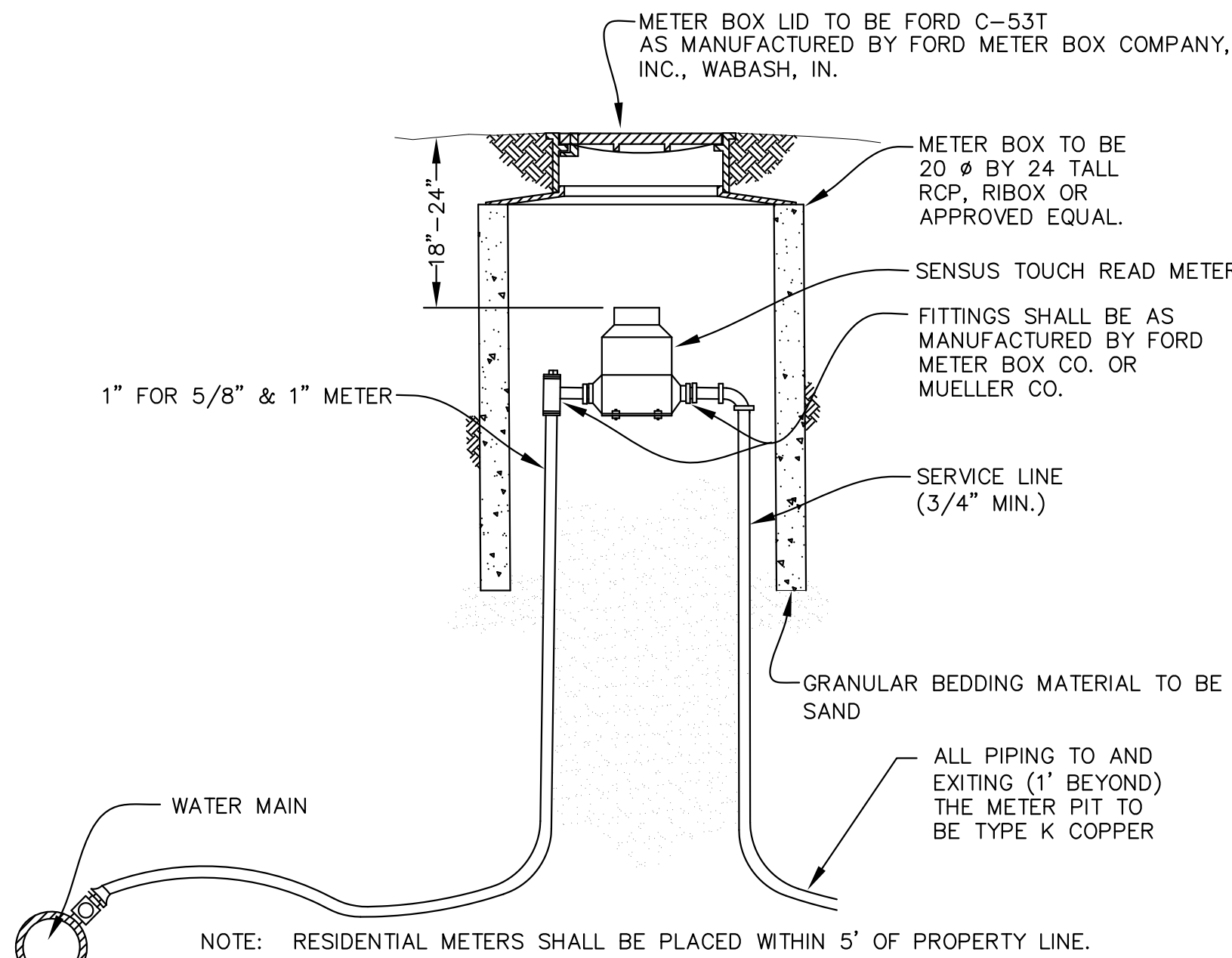
SPECIAL SURFACE STREETS:

- ANY SPECIAL SURFACES SHALL BE RESTORED IN-KIND. FOR EXAMPLE. BRICK SURFACE STREETS REQUIRE ALL PAVEMENT CUTS TO BE RESTORED WITH BRICK. COBBLESTONE SURFACE STREETS MUST BE RESTORED WITH COBBLESTONE. PERMIT HOLDER SHALL SALVAGE AS MUCH OF THE EXISTING BRICK OR COBBLESTONE AS POSSIBLE FOR REUSE IN THE RESTORATION AND SHALL SUPPLY ANY REMAINING MATERIAL REQUIRED FOR THE RESTORATION.

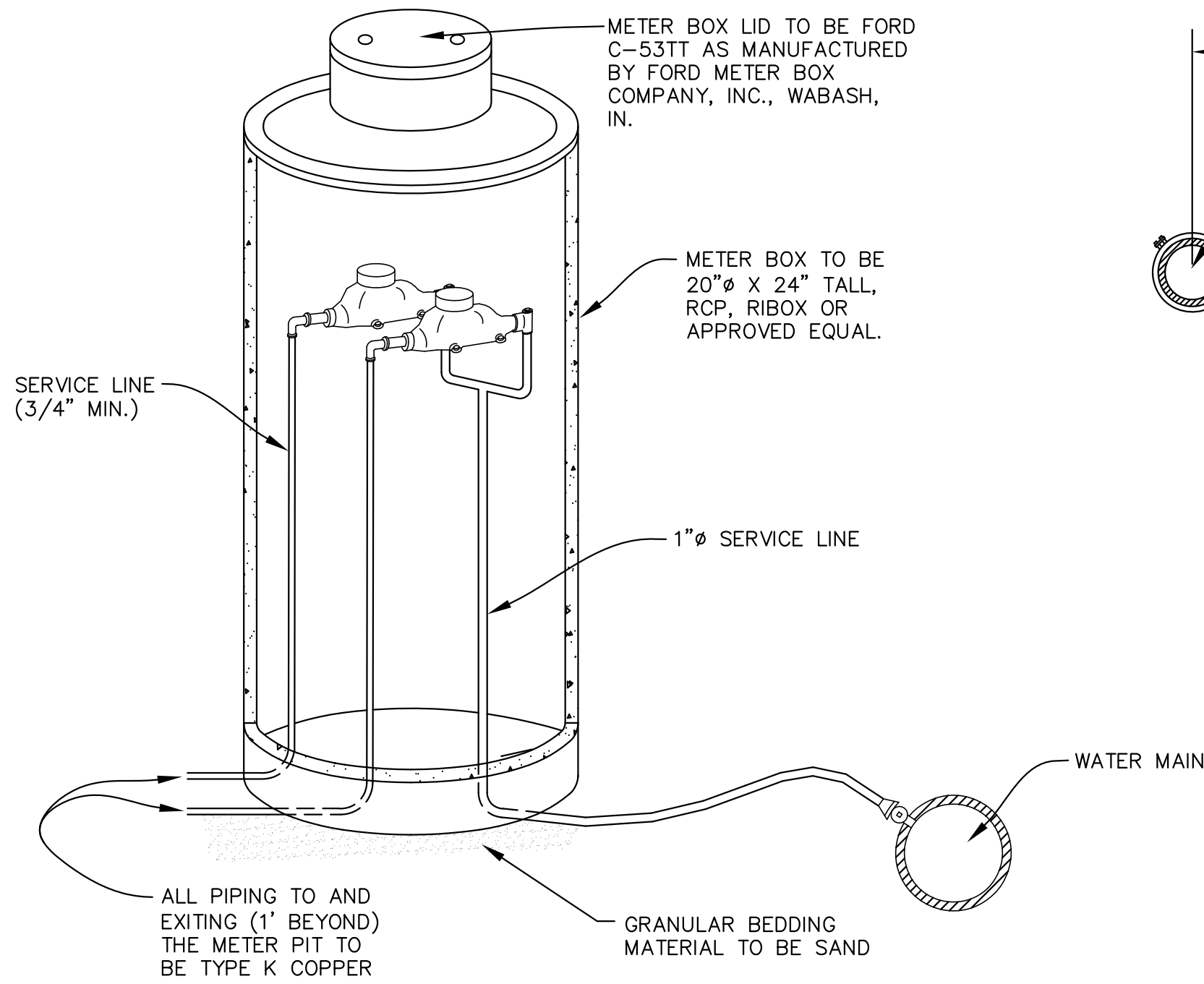
PROJECT NAME	PROJECT SHEET NUMBER
of	

CITY OF DELPHI

(800) 382-5544 HOLEY MOLEY	201 SOUTH UNION STREET DELPHI, INDIANA 46923	DATE MARCH 2008
(765) 564-2345 COMMUNITY DEV.		SHEET
(765) 564-2313 WASTEWATER DEPARTMENT	PAVEMENT REPAIR AND RESTORATION TYPICAL SECTIONS AND NOTES	6
(765) 564-3944 WATER WORKS		OF
(765) 564-2234 FIRE DEPT.		12
(765) 564-2345 POLICE DEPT.		



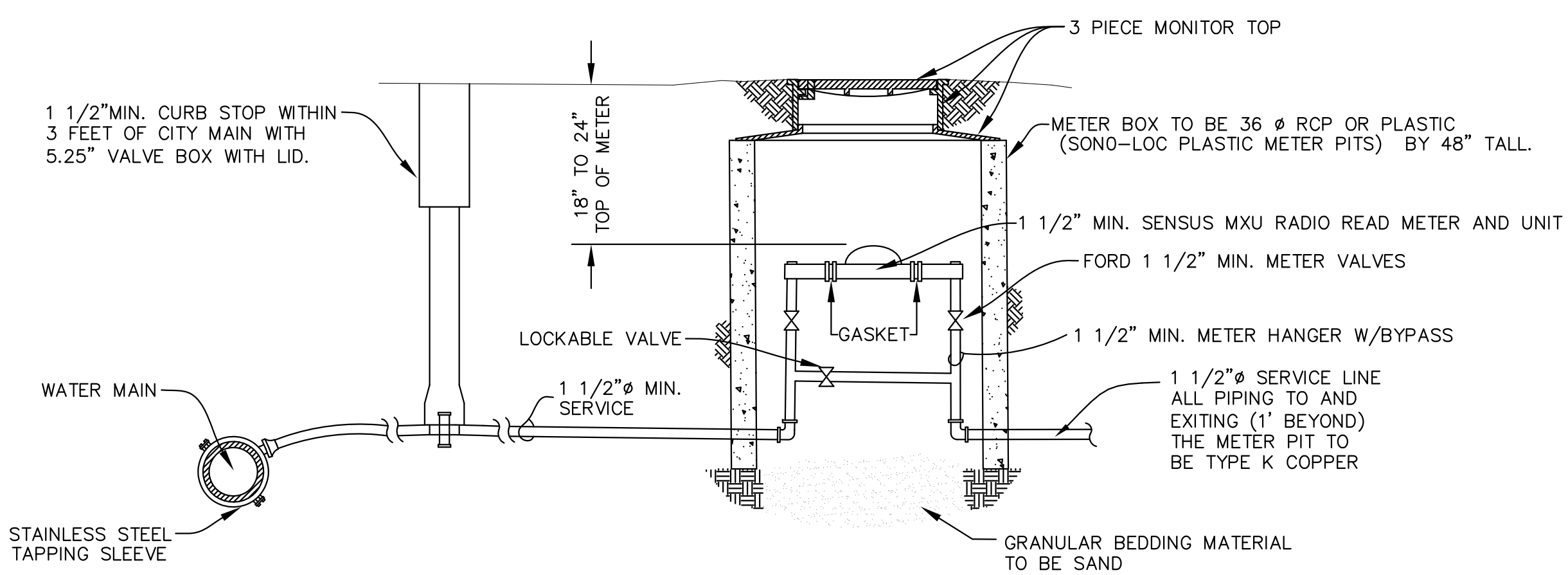
1 WATER METER PIT DETAIL FOR 5/8" AND 1" METERS
NOT TO SCALE



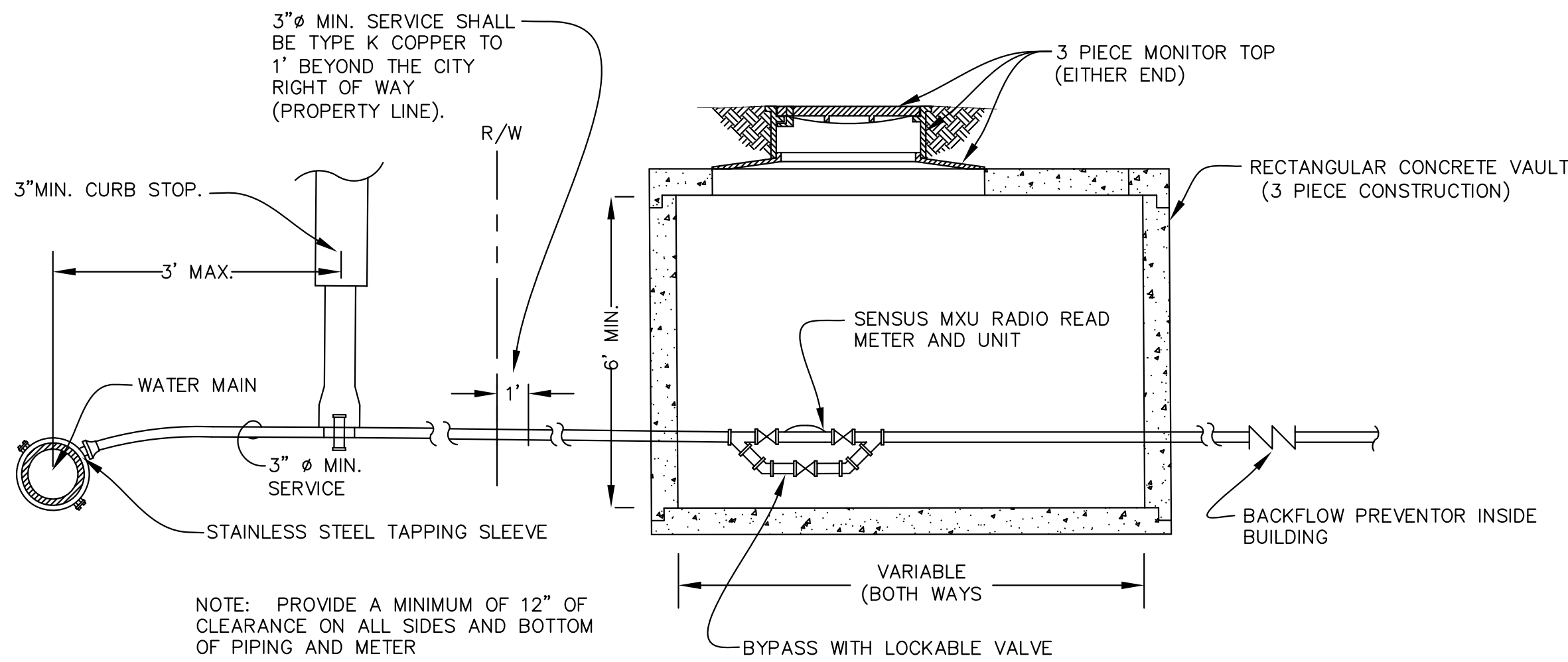
2 STANDARD DOUBLE METER PIT INSTALLATION FOR 5/8" METERS
NOT TO SCALE

3 WATER MAIN NOTES

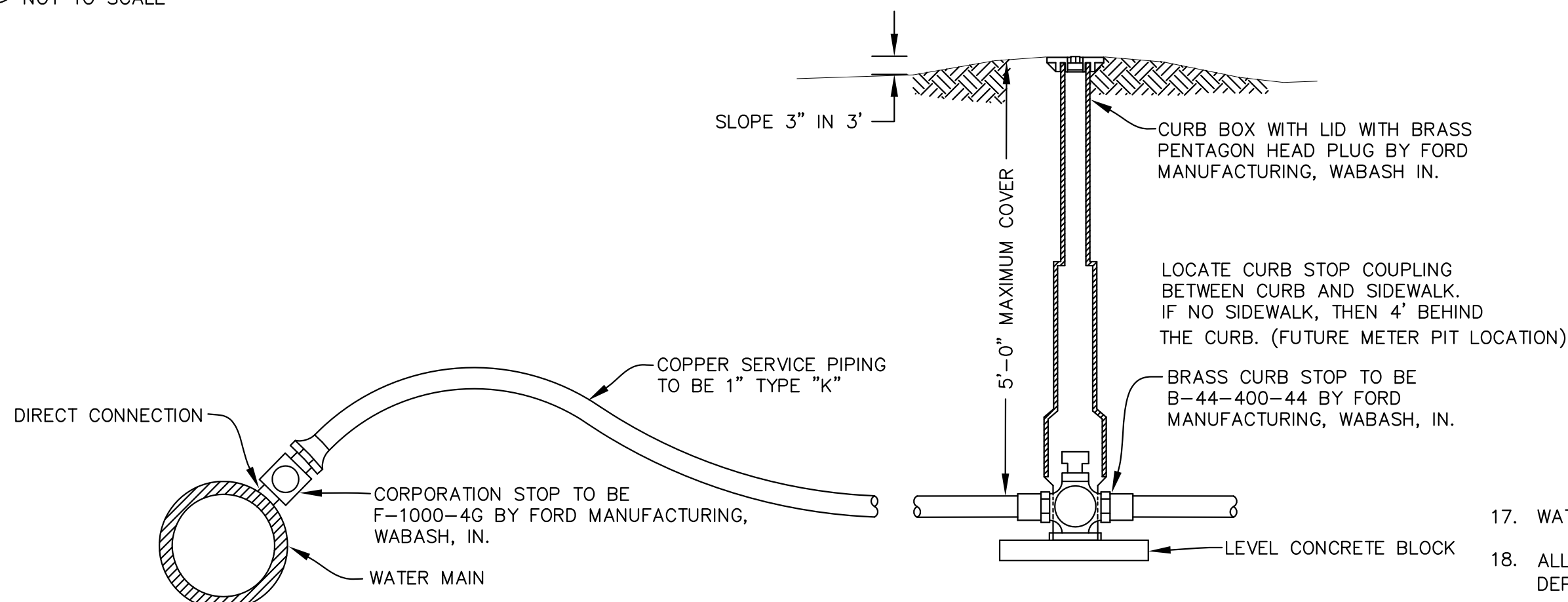
- ALL WATER MAINS SHALL BE CEMENT LINED DUCTILE IRON (D.I.) (PRESSURE CLASS 250 MIN., SLIP JOINT PIPE CONFORMING TO AWWA C-110, C-111, C-150 AND C-151 AS APPLICABLE AND NSF-61.
- ALL FITTINGS TO BE DUCTILE IRON (D.I.) WITH MECHANICAL JOINTS (M.J.) CONFORMING TO AWWA C-110, C-111, C-153 AND NSF-61.
- ALL WATER SERVICE LINES SHALL BE 1" DIAMETER (MINIMUM) TYPE K COPPER TUBING TERMINATING WITH A CURB STOP. SERVICE LINE LOCATIONS SHALL BE MARKED BY STAMPING OR SAW CUTTING A "W" IN THE CURB. THE CURB STOP/WATER SERVICE SHOULD BE LOCATED ON P/L OR WITHIN 5'.
- THE MANUFACTURER'S ALLOWABLE PIPE DEFLECTION SHALL BE USED TO MAINTAIN THE VERTICAL AND HORIZONTAL ROUTE UNLESS OTHER FITTINGS (I.e. TEES AND ELBOWS) OR METHODS ARE SPECIFICALLY CALLED OUT, OR ARE DIRECTED BY THE CITY.
- MEG-A-LUG RETAINER GLANDS BY EBBA IRON, INC., EASTLAND, TX SHALL BE USED ON EACH SIDE OF FITTINGS WHERE THE WATER MAIN CHANGES DIRECTION. ADDITIONAL SETS OF RETAINER GLANDS ARE TO BE PLACED AT PIPE LENGTHS ABOVE AND BELOW THE FITTINGS AS REQUIRED (SEE CHART ON SHEET #7). FIELD-LOK GASKETS OR ONE BOLT RESTRAINED FITTINGS CAN BE USED IN LIEU OF RETAINER GLANDS.
- THE MINIMUM SIZE REQUIREMENT FOR ALL COMMERCIAL WATER SERVICE LATERALS IS ONE (1) INCH. (1" SERVICE LINE AND 1" METER)
- ALL INDUSTRIAL/COMMERCIAL DEVELOPMENTS SHALL HAVE A MINIMUM 6" X "MAIN SIZE" TEE INSTALLED TO EACH PROPOSED LOT FOR FUTURE FIRE/ DOMESTIC SERVICE (SEE SITE PLAN FIRE SERVICE DETAIL).
- WATER MAINS SHALL HAVE A MINIMUM OF 5'-0" COVER. WATER MAIN COVER SHALL NOT EXCEED 11' WITHOUT CITY APPROVAL. ANY DEVIATIONS FROM PLAN GRADE MUST BE SHOWN ON THE "AS-BUILT" DRAWINGS.
- THE COMPLETED WATER MAIN SHALL BE SUBJECTED TO A 150 PSI HYDROSTATIC TEST AND SHALL BE DISINFECTED. ALL VALVES AND HYDRANTS MUST BE COMPLETELY OPENED AND CLOSED AND ALL CORPORATION STOPS AND SERVICE LINES IN PLACE PRIOR TO PERFORMING THE HYDROSTATIC TEST. THE HYDROSTATIC TEST SHALL BE OF AT LEAST 2-HR DURATION. TEST PRESSURE SHALL NOT VARY MORE THAN +/- 5 PSI FOR THE DURATION OF THE TEST. GAUGES FOR TESTING SHALL BE RATED FOR 150 PSI OR GREATER AND SHALL INDICATE PRESSURE IN 5 PSI (MAX) INCREMENTS. THE TEST WILL BE PERFORMED IN ACCORDANCE WITH CITY TESTING PROCEDURES, AND IN CONFORMANCE WITH AWWA C-600. ALL VALVES INCLUDING THE WATCH VALVES AT THE HYDRANTS SHALL BE OPEN DURING THE PRESSURE AND BACTERIA TESTS. HYDROSTATIC AND BACTERIAL TESTING SHALL BE COMPLETED WITHIN 30 DAYS AFTER THE COMPLETED WATER MAIN HAS BEEN CHARGED (FILLED). AFTER FINAL FLUSHING AND AGAIN AFTER 24 HOURS, SAMPLES SHALL BE COLLECTED FROM THE WATER MAIN, AND SHALL BE TESTED FOR BACTERIOLOGICAL QUALITY IN ACCORDANCE WITH THE STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER (AT AN APPROVED LABORATORY), AND SHALL SHOW THE ABSENCE OF COLIFORM ORGANISMS. THE CONTRACTOR MUST CONTACT THE WATERWORKS PUBLIC WORKS INSPECTOR TO DETERMINE THE LOCATION AND NUMBER OF BACTERIA SAMPLES TO BE TAKEN, AND TO SET A SAMPLING DATE AND TIME. THE ORIGINALS OF ALL TEST RESULTS AND CHAIN OF CUSTODY FORMS ARE TO BE SENT TO THE WATERWORKS WITHIN 5 DAYS OF TESTING WITH A COPY TO THE DELPHI BOARD OF WORKS.
- VALVE OPENING DIRECTION SHALL BE CONSISTENT WITH THE EXISTING UTILITY SYSTEM. (LEFT HAND OPEN/COUNTER CLOCKWISE) VALVE LOCATIONS SHALL BE MARKED BY STAMPING OR CUTTING A "V" IN THE CURB, AND PLACING A PARTIALLY BURIED 2x4 AT THE LOCATION.



4 WATER METER PIT DETAIL FOR 1 1/2" AND 2" COMMERCIAL METERS
NOT TO SCALE

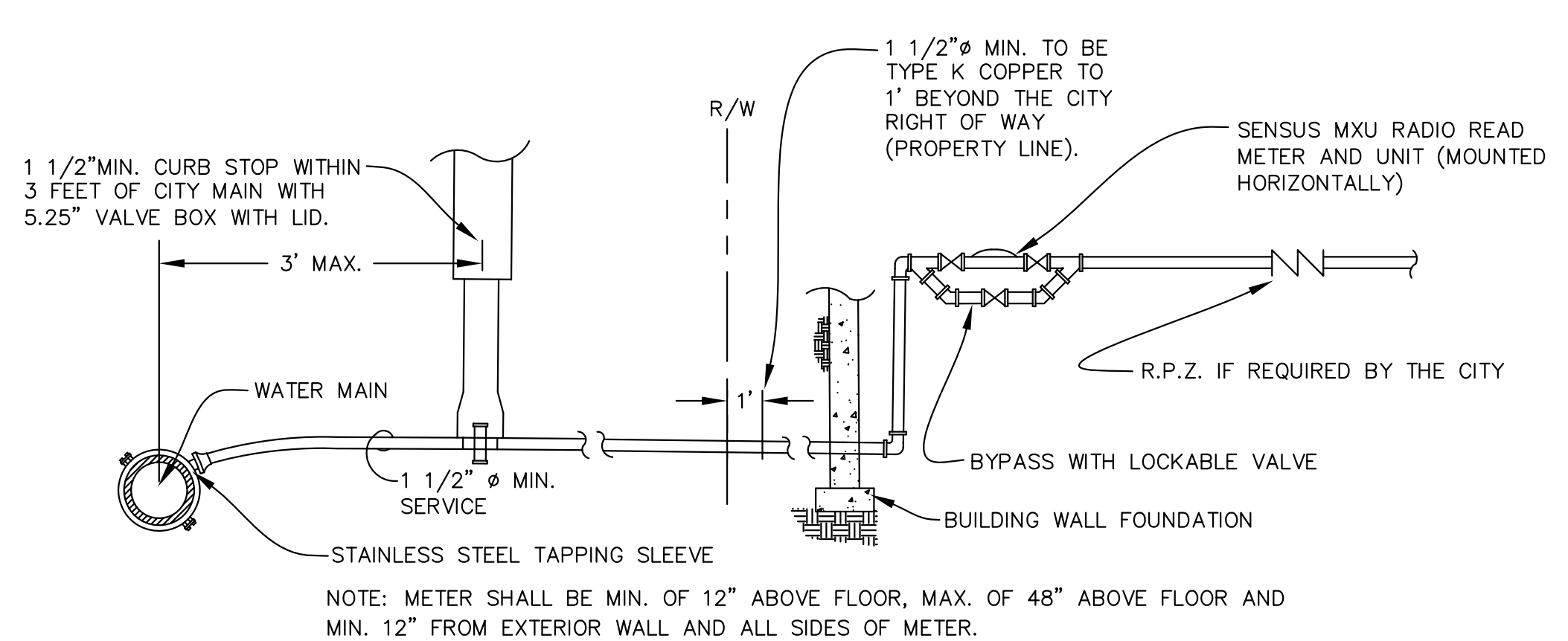


5 WATER METER VAULT DETAIL FOR 3" AND LARGER COMMERCIAL METERS
NOT TO SCALE

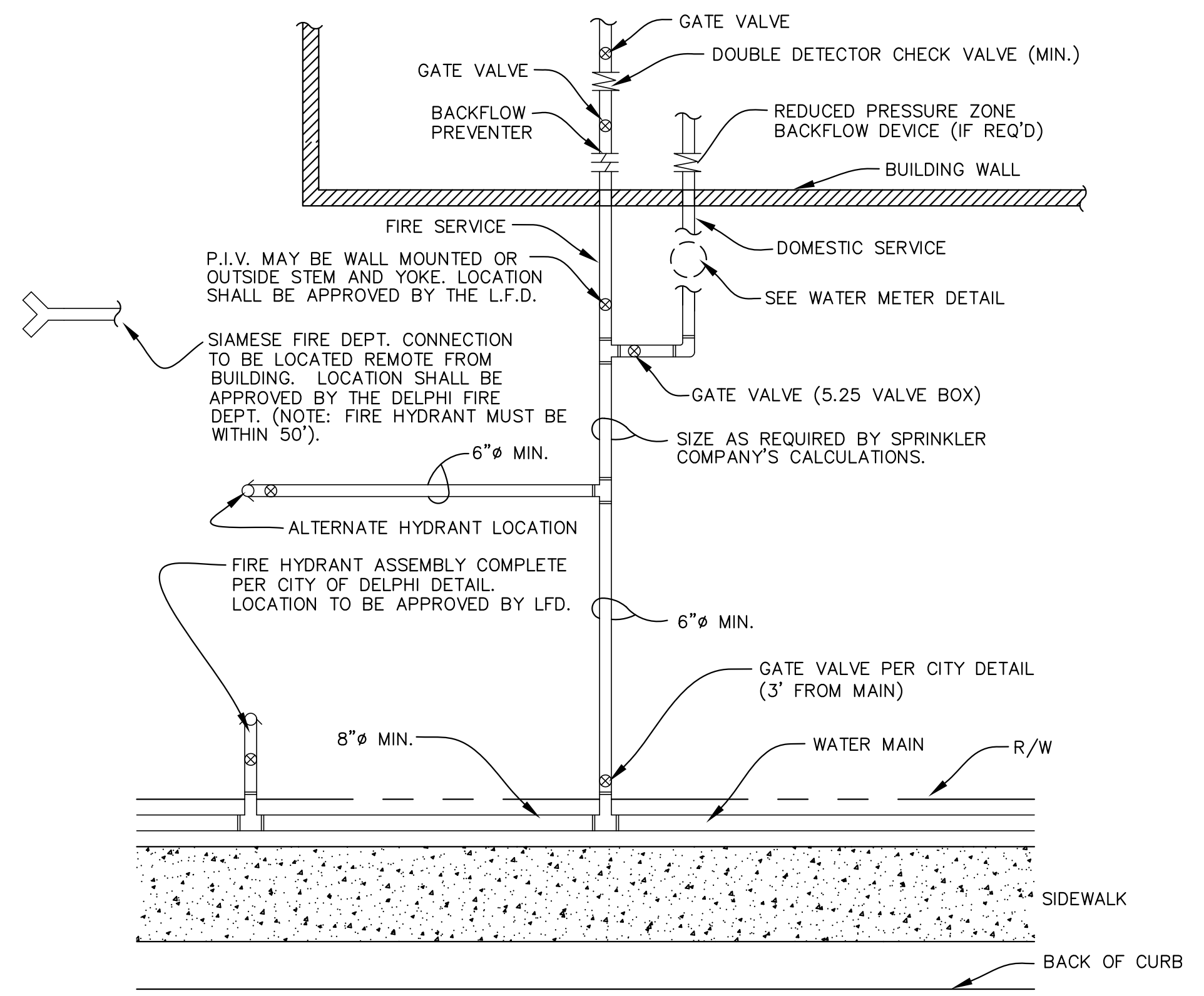


6 TAP SERVICE DETAIL
NOT TO SCALE

- TRENCHES UNDER PAVED AREAS (EXCLUDING SIDEWALKS) SHALL BE BACKFILLED WITH GRANULAR MATERIAL PER INDIANA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", LATEST EDITION, SECTION 211, AND COMPACTED IN LIFTS. GRANULAR MATERIAL TO EXTEND FIVE FEET BEYOND THE LIMITS OF THE PAVED AREA WITH A 1:1 SLOPE TO THE BOTTOM OF THE TRENCH. GRANULAR BEDDING IS REQUIRED UNDER ALL PAVED AREAS (EXCLUDING SIDEWALKS).
- 18" VERTICAL SEPARATION AND 10'-0" HORIZONTAL SEPARATION TO BE MAINTAINED BETWEEN WATER MAINS, HYDRANTS AND SEWERS (SANITARY AND STORM).
- TAPS AND FITTINGS ARE NOT TO BE INSTALLED UNDER PAVEMENTS OR IN EASEMENTS WITHOUT PRIOR APPROVAL OF THE CITY.
- WATERWORKS DEPT. ONLY SHALL OPEN VALVES TO CHARGE NEW LINES.
- TAPPING OF A CITY MAIN CAN ONLY BE DONE UNDER SUPERVISION OF THE CITY. TAPPING SLEEVES AND VALVES FOR PRESSURE TAPS ON MAINS UP TO 24"Ø SHALL BE MUELLER H-615, H-616 (OR STAINLESS STEEL SLEEVES) TAPPING VALVES SHALL BE 2360 SERIES BY MUELLER OR THE AFC 2500. TEES FOR MAINS WILL BE CUT-IN ONLY WHEN THE NEW MAIN IS TO BE LARGER THAN OR OF EQUAL SIZE TO THE EXISTING MAIN OR WHEN A NEW VALVE IS TO BE INSTALLED ON THE EXISTING MAIN NEAR THE LOCATION OF THE NEW TEE. SIZE-ON-SIZE IS PERMISSABLE FOR MAINS 12"Ø AND UNDER. STAINLESS STEEL SLEEVES SHALL MEET THE FOLLOWING REQUIREMENTS:
A) DUCTILE IRON OR STAINLESS STEEL FLANGE
B) 304 STAINLESS STEEL FULL BODY WITH STAINLESS STEEL BOLTS AND NUTS.



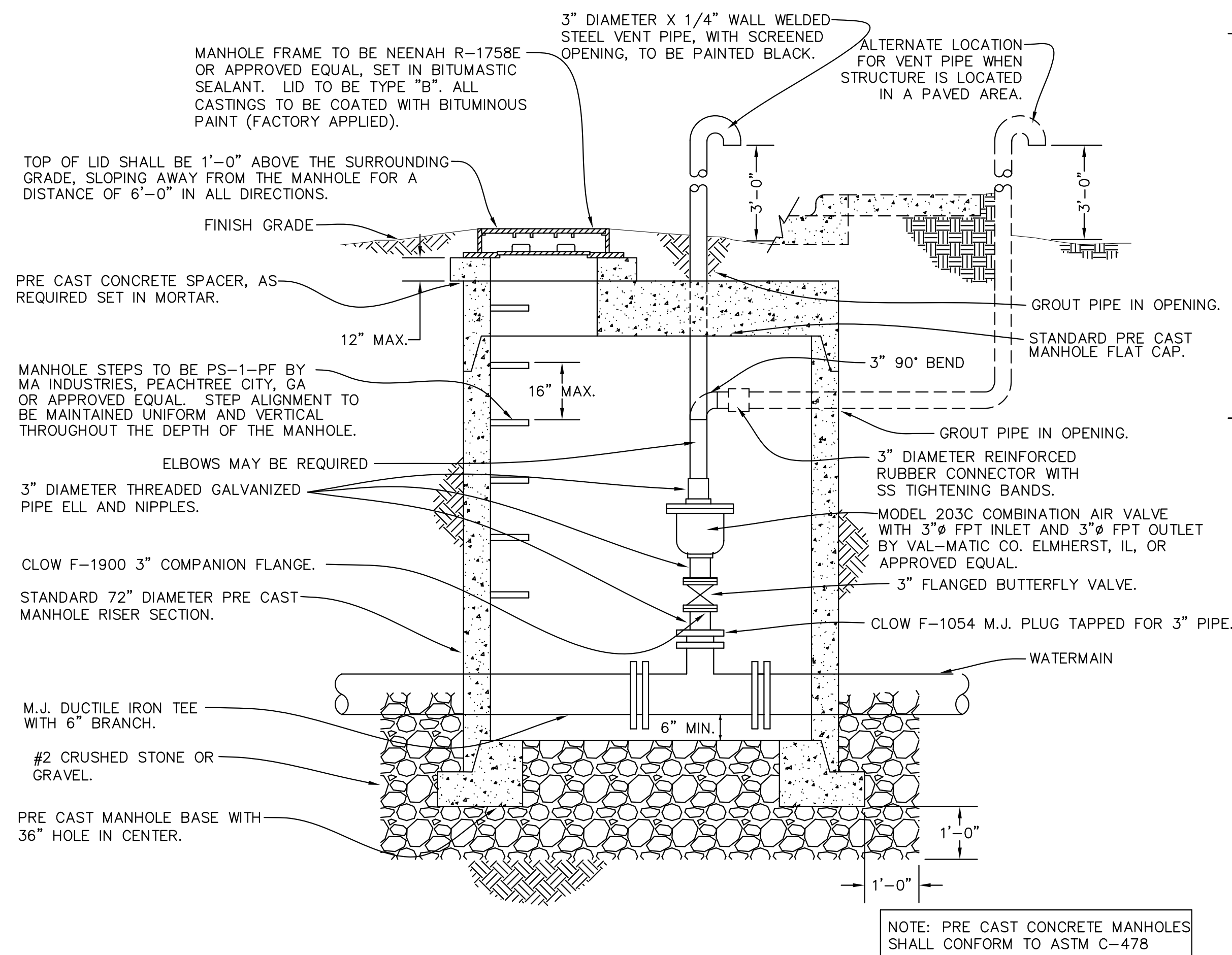
7 INTERIOR METER INSTALLATION DETAIL FOR 1 1/2" AND LARGER COMMERCIAL METERS
NOT TO SCALE



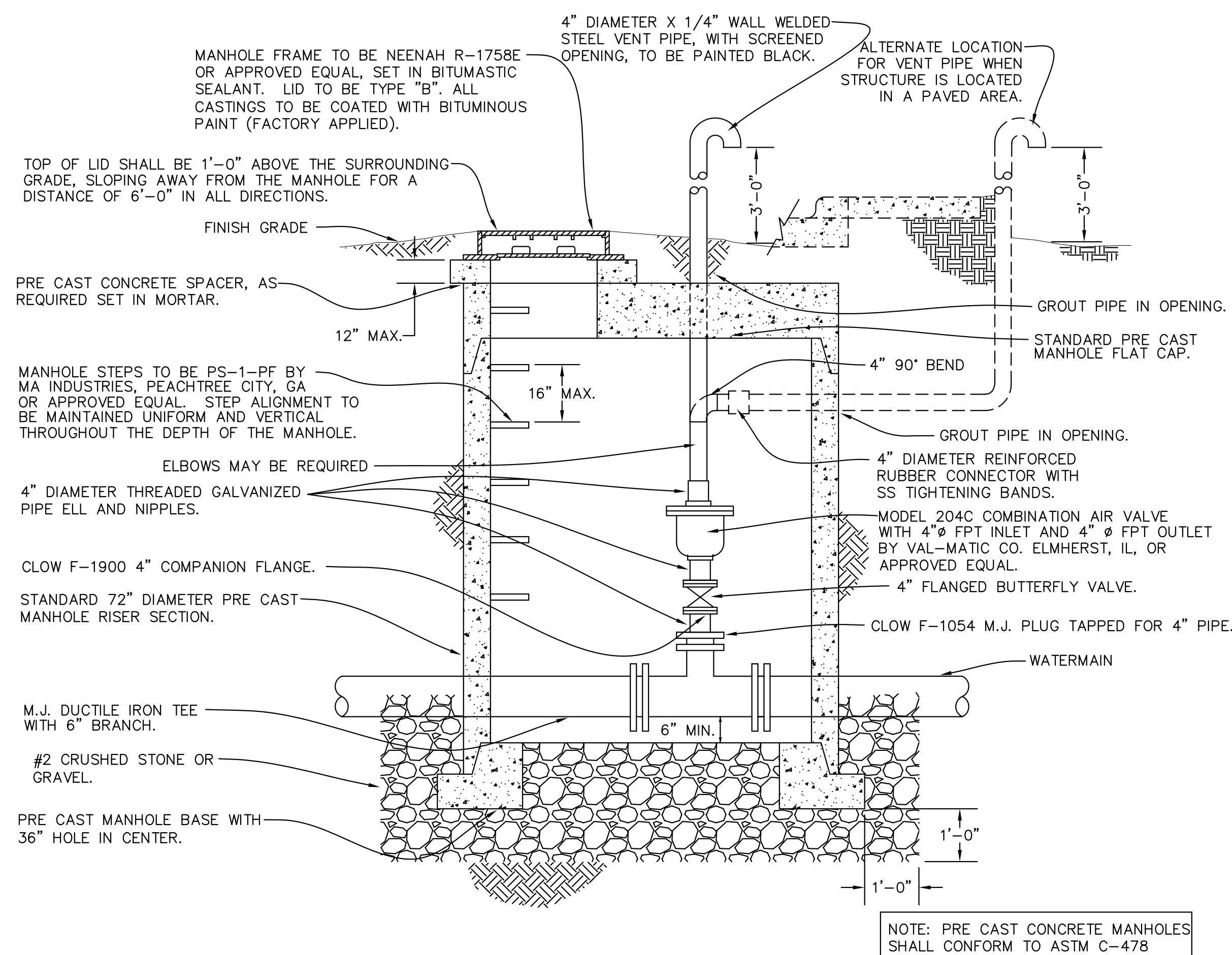
8 COMMERCIAL LOT WITH FIRE SERVICE DETAIL (TYP.)
NOT TO SCALE

- WATER TAP SERVICE TO BE PROVIDED FOR BOTH SHORT AND LONG SIDES.
- ALL FIRE PLANS, SPRINKLER PLANS SHALL BE SUBMITTED TO THE DELPHI FIRE DEPARTMENT (LFD) FOR REVIEW AND APPROVAL
- FLOW TEST DATA SHALL BE OBTAINED BY THE DEVELOPER/OWNER AT NO COST TO THE CITY AND UNDER THE SUPERVISION OF THE LFD AND WATERWORKS DEPT. TEST RESULTS AND LFD CERTIFICATION TO BE SUBMITTED TO THE DELPHI BOARD OF WORKS.
- ALL DOMESTIC (LAWN) SPRINKLER SYSTEMS SHALL BE 1-INCH SERVICE.
- WHENEVER PROPRIETARY EQUIPMENT IS SPECIFIED, "OR APPROVED EQUAL IMPLIED. ALL PROPOSALS FOR SUBSTITUTION SHALL BE SUBMITTED TO THE CITY IN WRITING FOR THEIR APPROVAL.

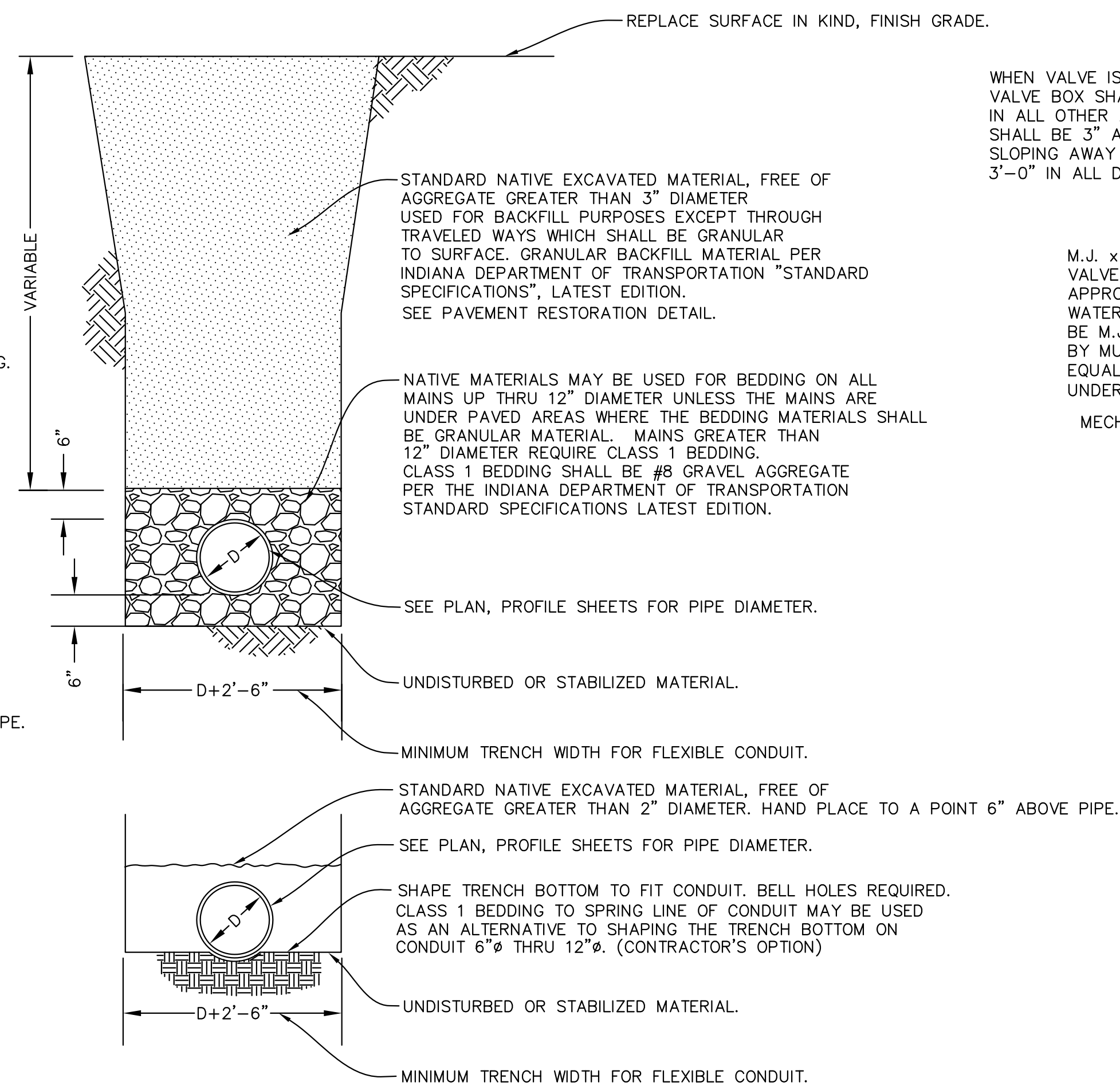
PROJECT NAME		PROJECT SHEET NUMBER	
		of	
CITY OF DELPHI			
(800) 382-5544	HOLEY MOLEY	201 SOUTH UNION STREET DELPHI, INDIANA 46923	DATE MARCH 2008
(765) 564-2345	COMMUNITY DEV.		SHEET 7
(765) 564-2313	WASTEWATER DEPARTMENT	WATER MAIN, AND METER TYPICAL DETAILS AND NOTES	OF 12
(765) 564-3944	WATER WORKS		
(765) 564-2234	FIRE DEPT.		
(765) 564-2345	POLICE DEPT.		



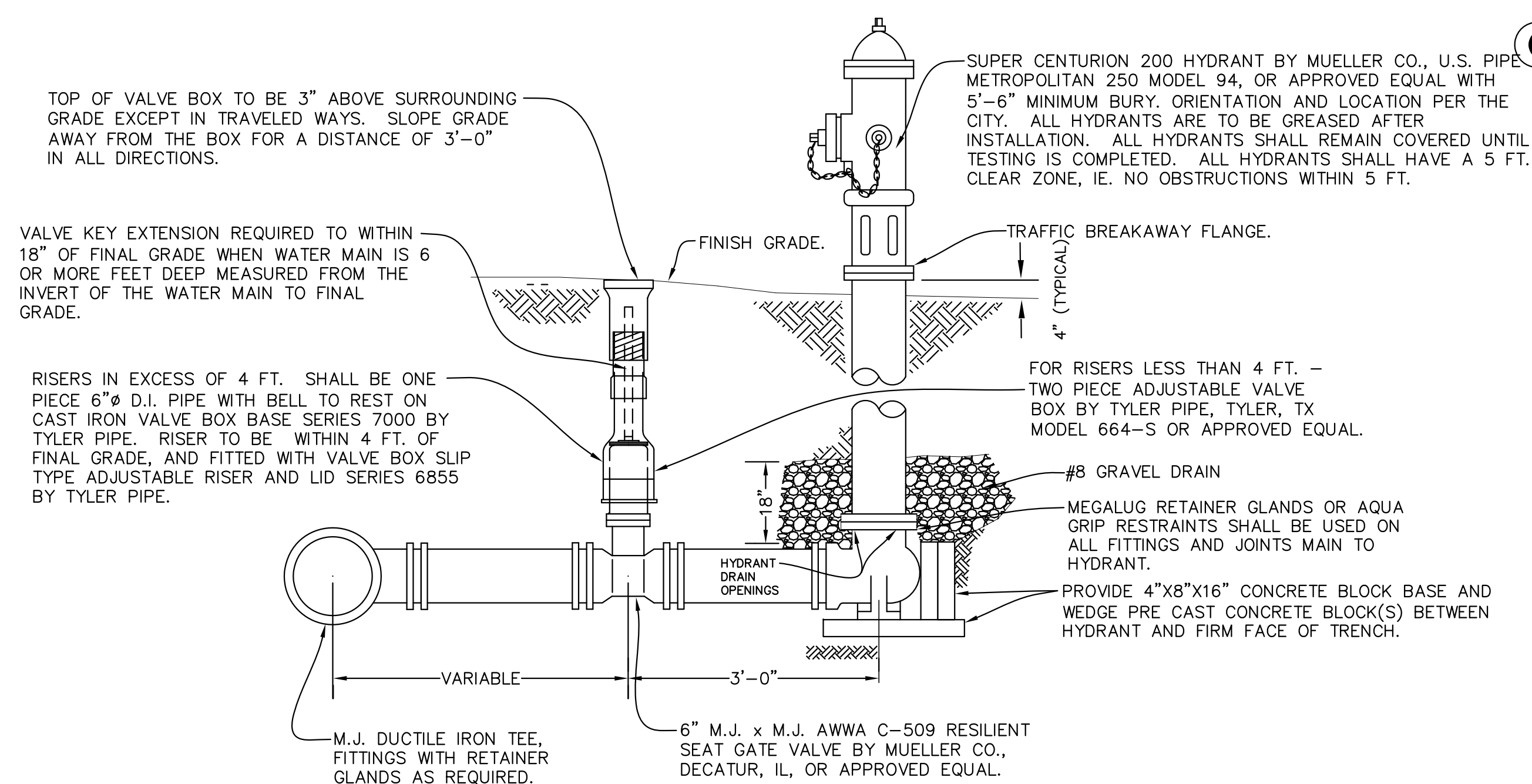
1 WATERMAIN AIR RELIEF MANHOLE (12"± TO 18"± MAIN)
NOT TO SCALE



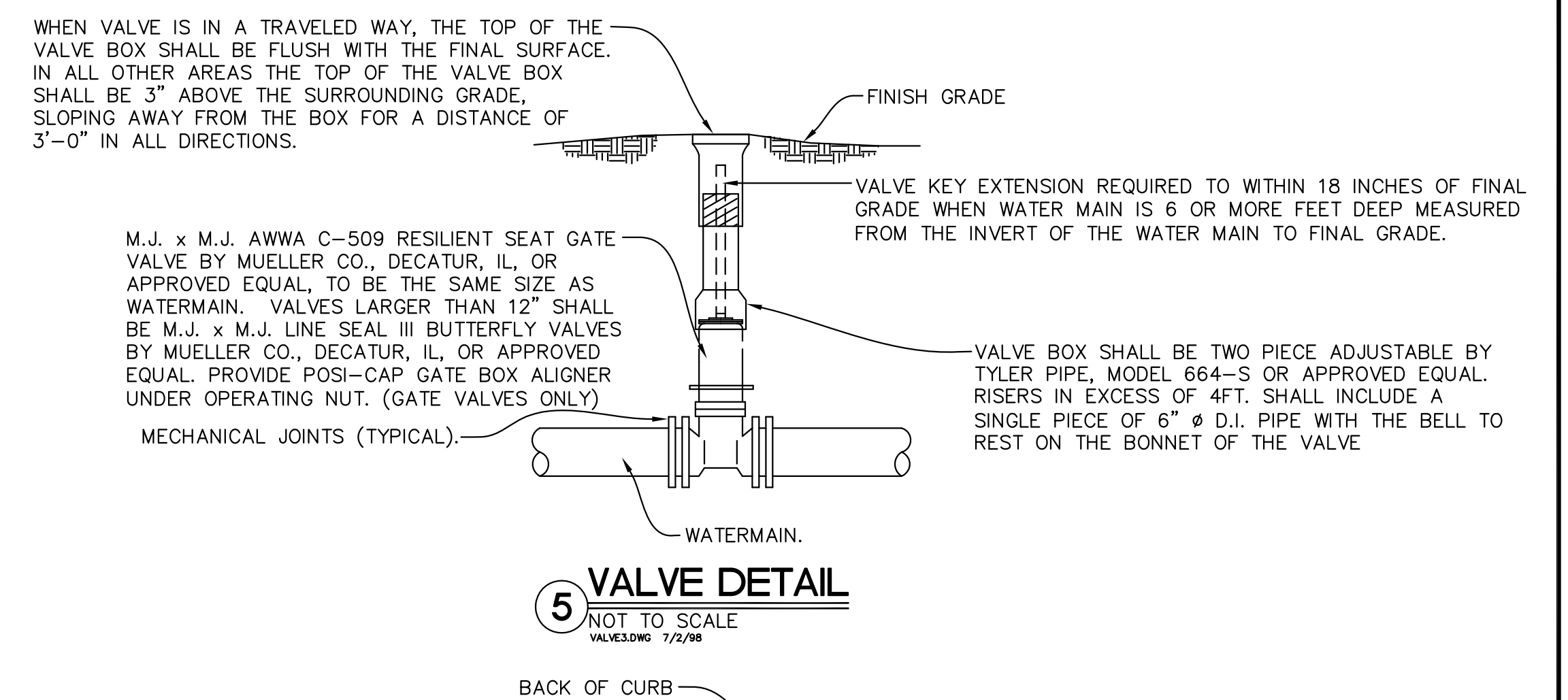
2 WATERMAIN AIR RELIEF MANHOLE (LARGER THAN 18" MAIN)
NOT TO SCALE



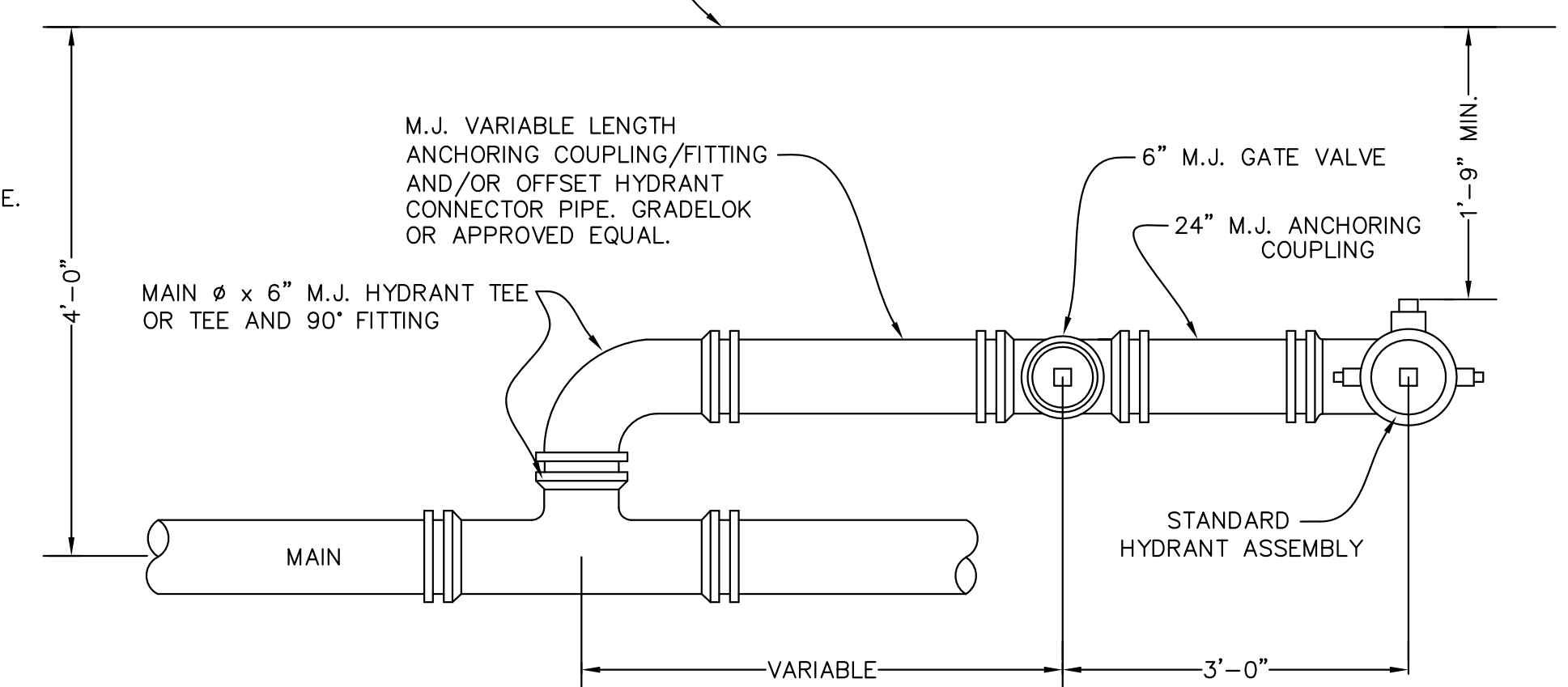
3 STANDARD BEDDING DETAIL



4 FIRE HYDRANT DETAIL



5 VALVE DETAIL
NOT TO SCALE
VALVE DWG. 7/2/98



HYDRANT DETAIL

PIPE NOT TO SCALE

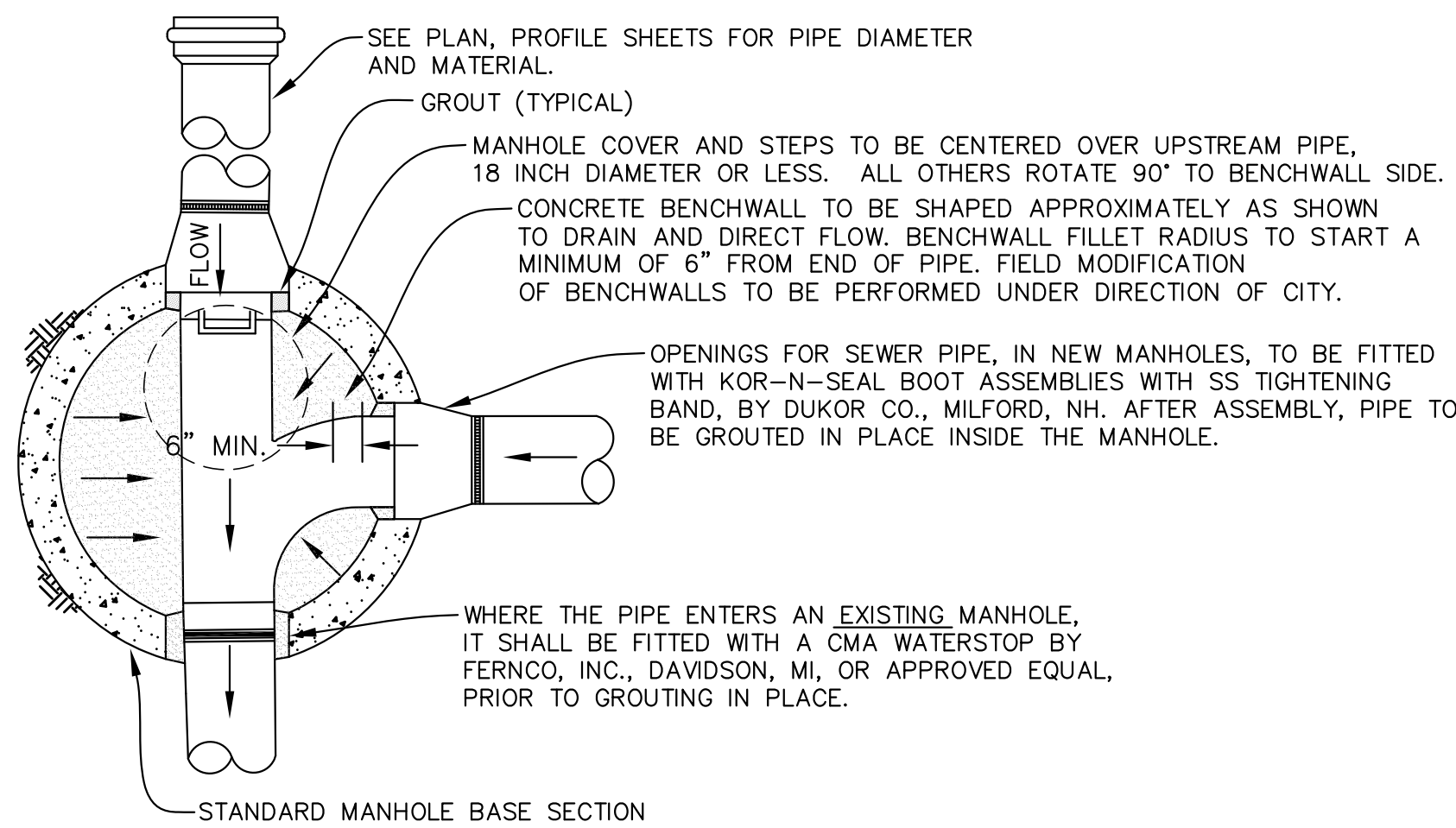
7 RESTRAINED JOINTS					
DUCTILE IRON PIPE, CLAY SOIL, GRANULAR BEDDING					
REQUIRED RESTRAINT IN FEET AT 6" DEPTH (COVER) AND 150 PSI					
PIPE SIZE GRADE 40 RHD	90°	45°	22½°	11¼°	
6"	32	14	7	4	
8"	41	17	9	4	
10"	50	21	10	5	
12"	59	25	12	6	
14"	69	29	14	7	
16"	78	33	16	8	
18"	87	37	18	9	
20"	96	40	20	10	
24"	114	48	23	12	

PROJECT NAME	PROJECT SHEET NUMBER
	of

CITY OF DELPHI		
(800) 382-5544 HOLEY MOLEY	201 SOUTH UNION STREET DELPHI, INDIANA 46923	DATE MARCH 2008
(765) 564-2345 COMMUNITY DEV.		SHEET 8
(765) 564-2313 WASTEWATER DEPARTMENT	WATERMAIN AND HYDRANT TYPICAL DETAILS AND NOTES	OF
(765) 564-3944 WATER WORKS		12
(765) 564-2234 FIRE DEPT.		
(765) 564-2345 POLICE DEPT.		

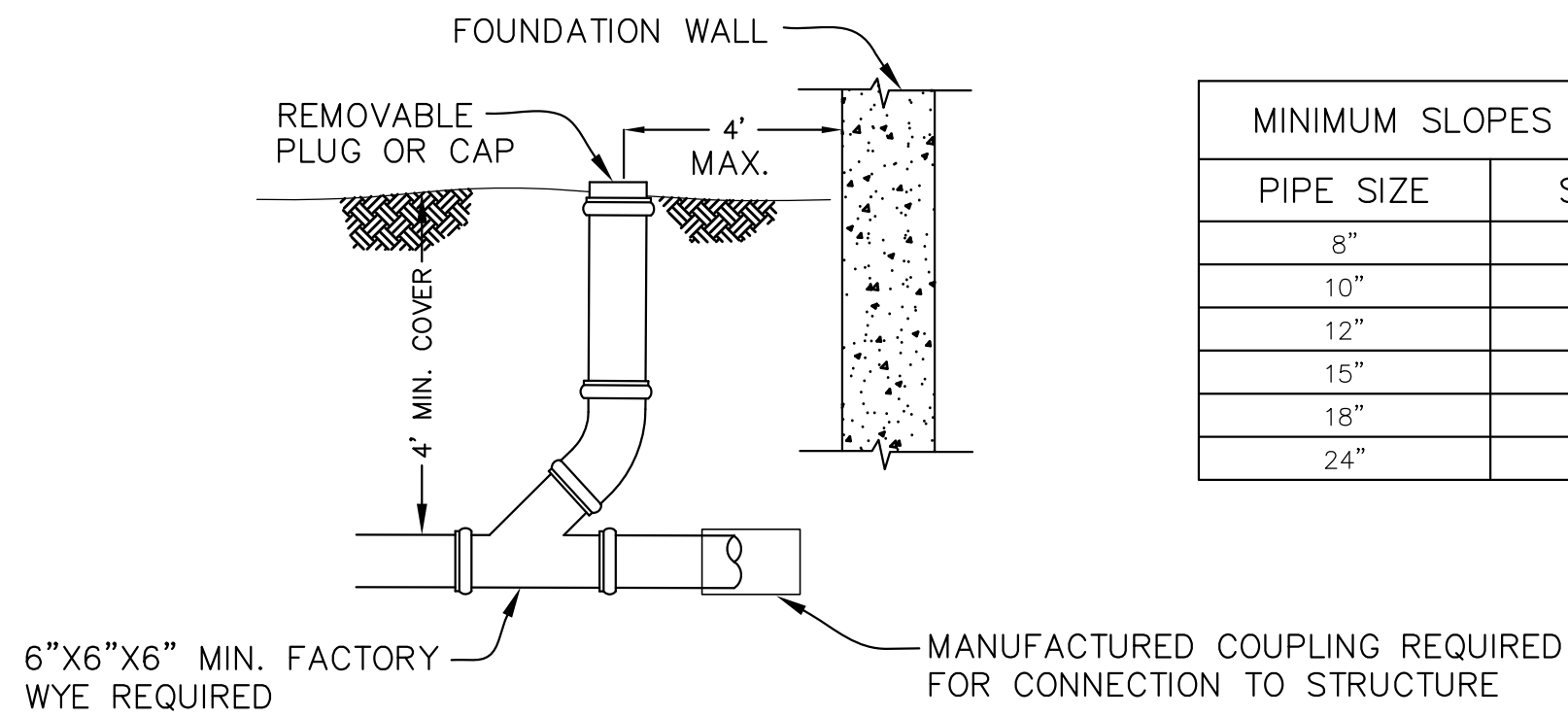
DATE
ARCH 2008

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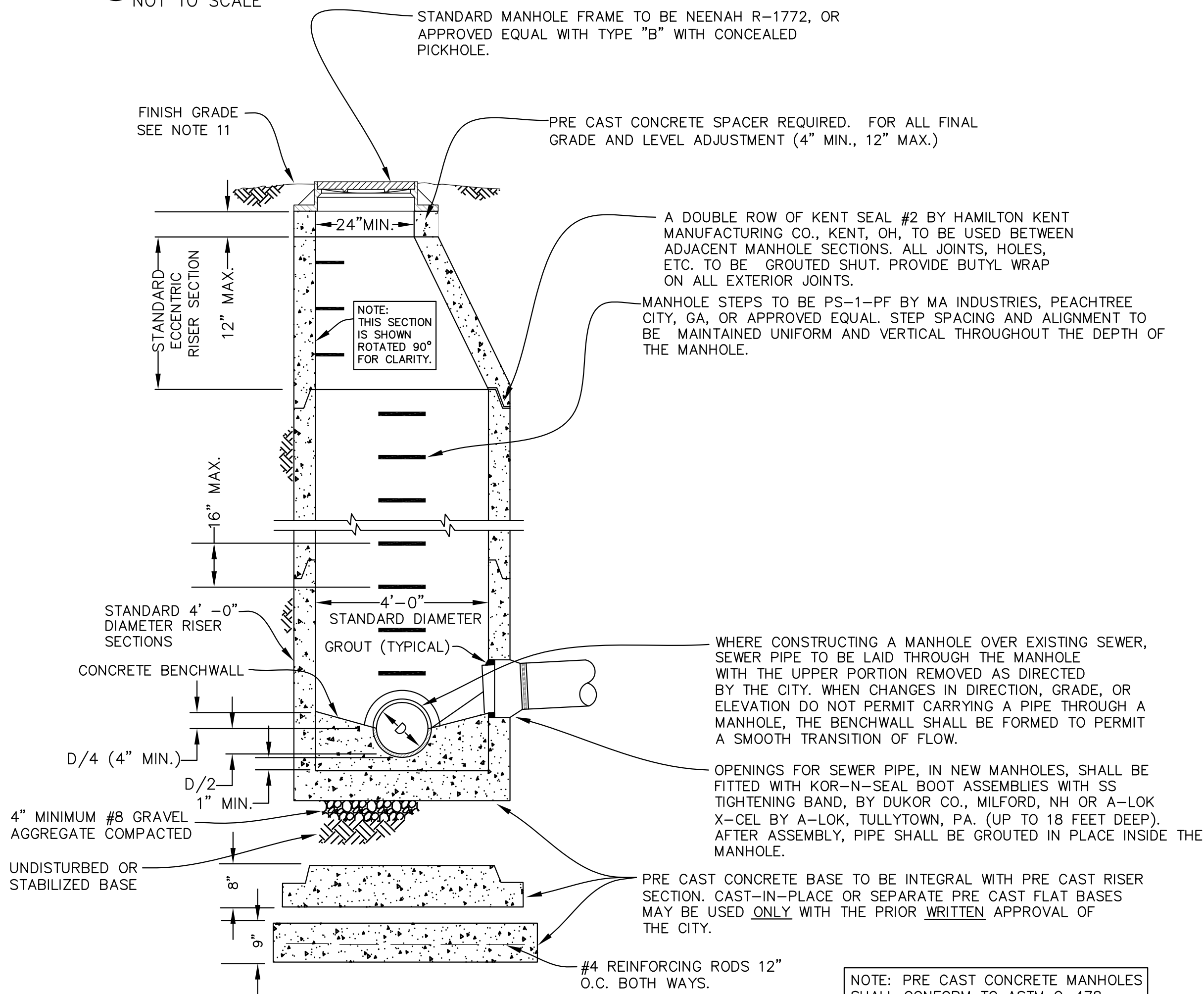
1 STANDARD SANITARY MANHOLE PLAN

NOT TO SCALE



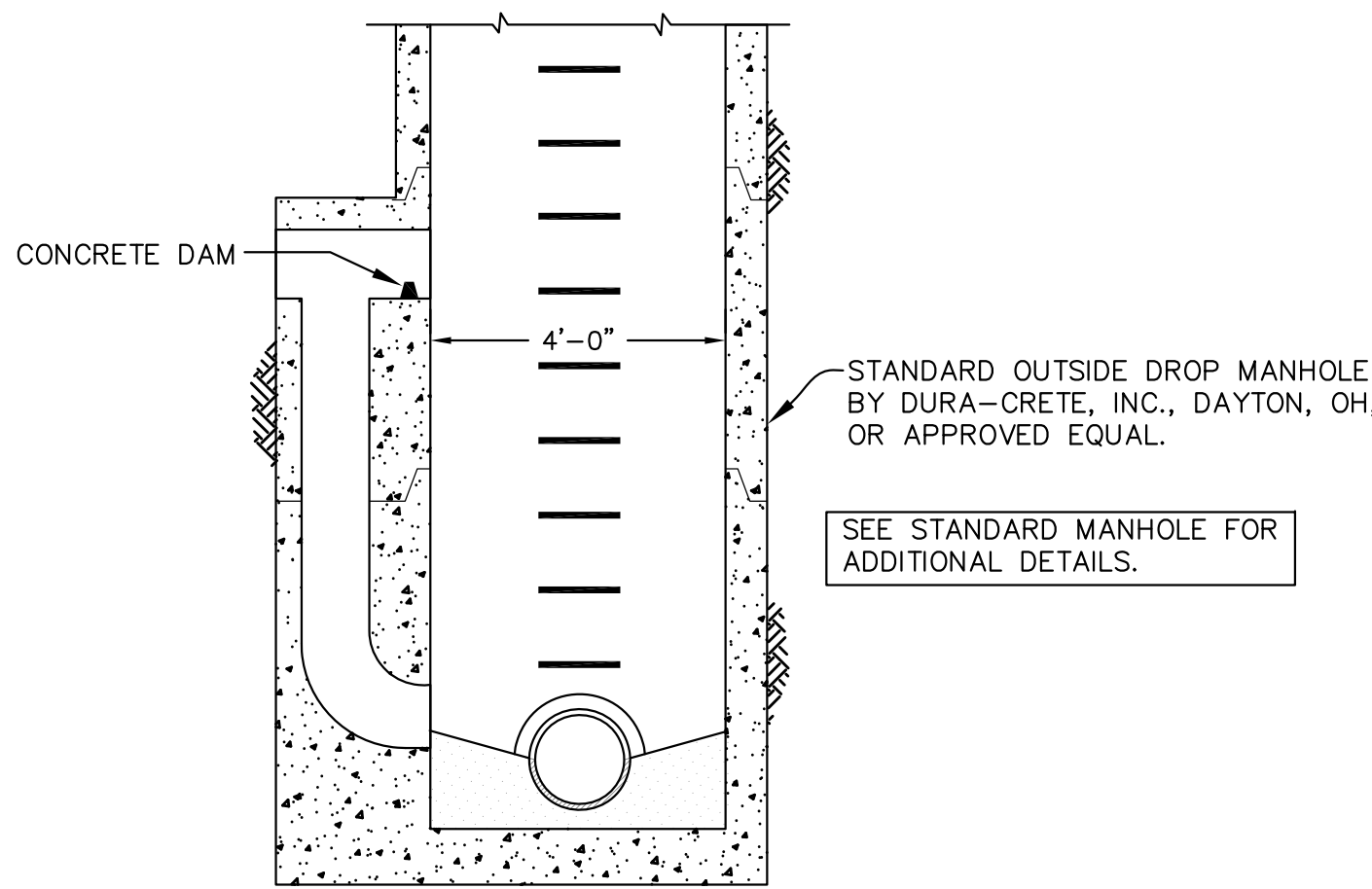
2 CLEAN-OUT DETAIL

NOT TO SCALE



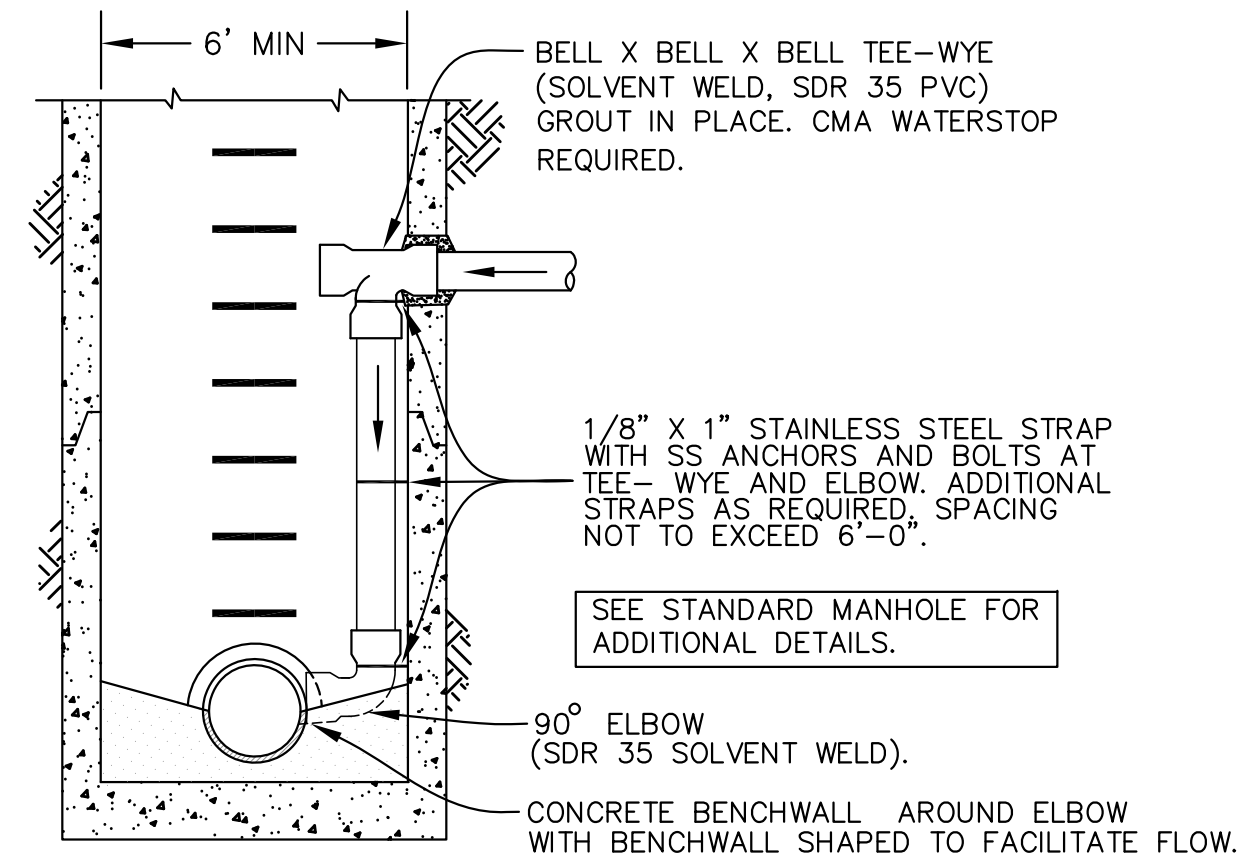
3 STANDARD SANITARY MANHOLE DETAIL

NOT TO SCALE



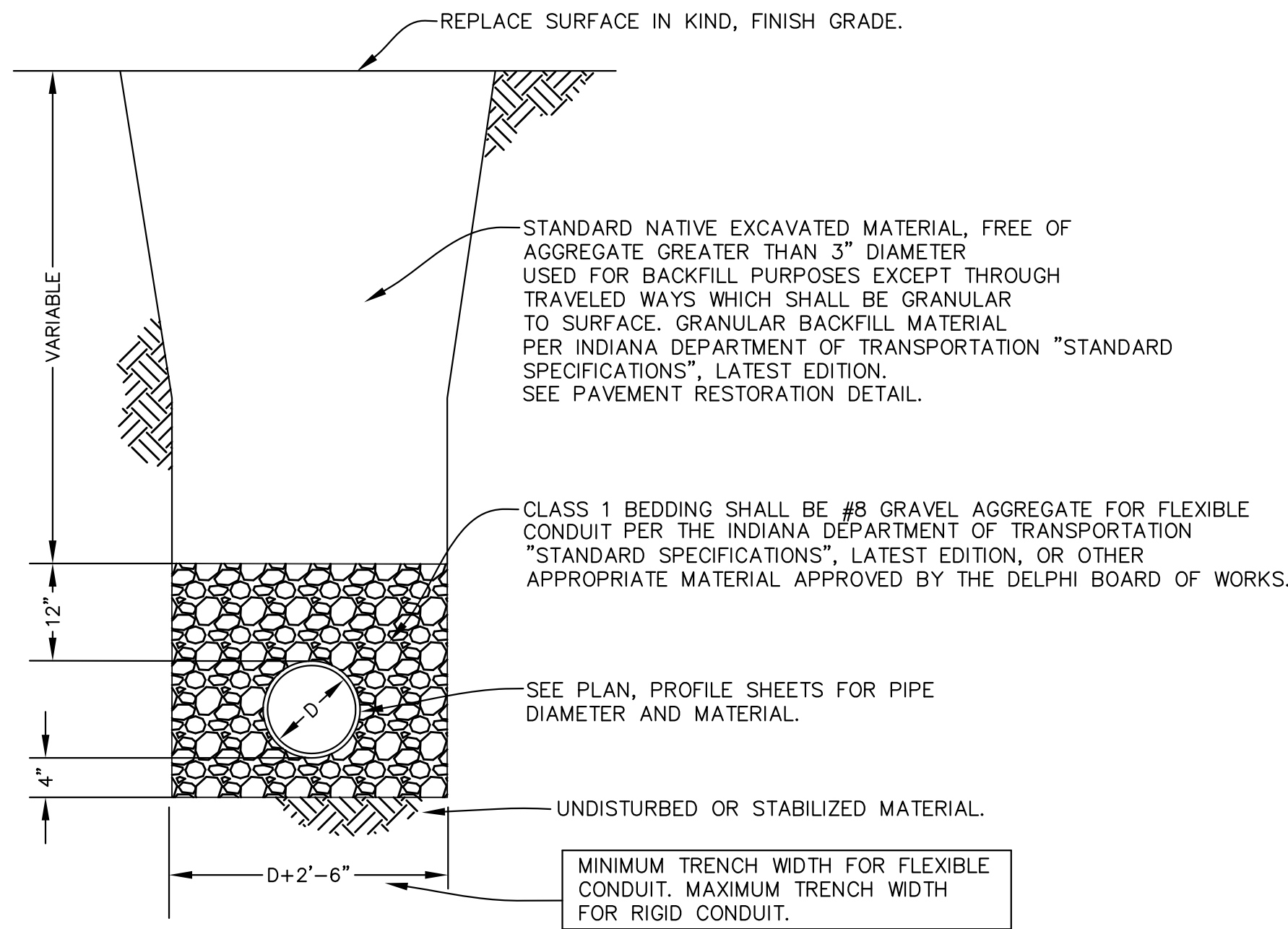
4 PRE CAST OUTSIDE DROP MANHOLE

NOT TO SCALE



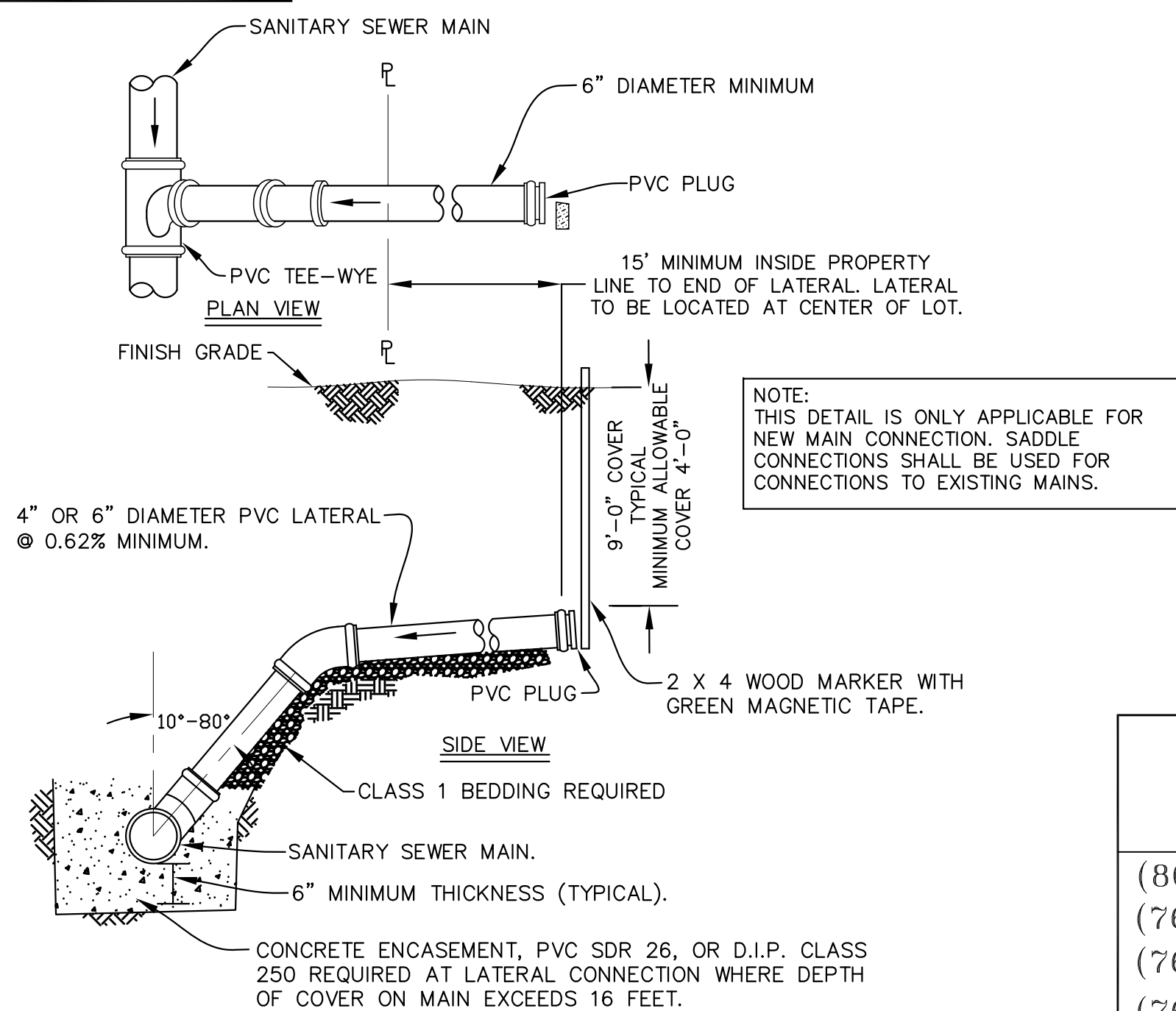
7 INSIDE DROP MANHOLE DETAIL

(EXISTING MANHOLES ONLY)
NOT TO SCALE



5 STANDARD BEDDING DETAIL

NOT TO SCALE



6 LATERAL CONNECTION DETAIL

NOT TO SCALE

8 SANITARY SEWER NOTES

- SANITARY SEWERS TO BE POLYVINYL CHLORIDE (PVC) SDR 35 PIPE AND SHALL MEET OR EXCEED ASTM D-3034 OR ASTM 679 AS APPLICABLE. JOINTS SHALL BE GASKETED, BELL AND SPIGOT TYPE WITH THE BELL MADE INTEGRAL WITH THE PIPE. SEE PLAN, PROFILE SHEETS FOR SIZES. SANITARY SEWERS TO BE SDR 26 PIPE FOR DEPTH 16' OR GREATER.
- SANITARY SEWER LATERALS FOR HOUSE CONNECTIONS SHALL BE 4" OR 6" DIAMETER PVC SDR 35 CONFORMING TO ASTM D-3034, LAID AT A MINIMUM SLOPE OF 0.62%. ENDS TO BE PLUGGED. JOINTS SHALL BE GASKETED BELL AND SPIGOT TYPE WITH THE BELL MADE INTEGRAL. PIPE LATERALS LONGER THAN 100' REQUIRE A CLEANOUT EVERY 100'.
- LATERAL CONNECTIONS TO AN EXISTING SEWER SHALL BE MADE WITH A BOOT-N-SADDLE WITH STAINLESS STEEL STRAPS AND APPROPRIATE RUBBER FITTING.
- THE COMPLETED SANITARY SEWER SHALL BE HIGH PRESSURE WATER JET CLEANED AND SUBJECTED TO AN AIR TEST CONFORMING TO ASTM F1417-92. A DEFLECTION TEST SHALL BE PERFORMED WITH A "GO-NO-GO" MANDRELL (95%) ACCORDING TO IDEM STANDARDS. CLEANING, TELEVISIONING AND TESTING SHALL BE PERFORMED A MINIMUM OF 30 DAYS AFTER INSTALLATION AND WITNESSED BY THE CITY. ALL COSTS OF CLEANING AND TESTING ARE TO BE BORNE BY THE CONTRACTOR.
- MANHOLES SHALL BE AIR TESTED IN ACCORDANCE WITH ASTM C1244-93, STANDARD TEST METHOD FOR CONCRETE SEWER MANHOLES BY THE NEGATIVE AIR PRESSURE (VACUUM) TEST. VACUUM TESTING SHALL BE PERFORMED FROM THE TOP OF THE CASTING DOWN.
- 18" VERTICAL SEPARATION AND 10'-0" HORIZONTAL SEPARATION TO BE MAINTAINED BETWEEN WATER MAINS HYDRANTS AND SEWERS (SANITARY AND STORM).
- TRENCHES UNDER PAVED AREAS (EXCLUDING SIDEWALKS) SHALL BE BACKFILLED WITH GRANULAR MATERIAL PER INDIANA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", LATEST EDITION, AND COMPACTED IN LIFTS. GRANULAR MATERIAL TO EXTEND 5 FEET BEYOND THE LIMITS OF THE PAVED AREA WITH A 1:1 SLOPE TO THE BOTTOM OF THE TRENCH.
- ALL SEWER LINES SHALL HAVE A 0.1 FT. DROP THROUGH THE MANHOLE. WHERE SEWER LINES CHANGE DIRECTION THE MANHOLE INVERT ELEVATION SHALL DROP 0.25 FEET (TYPICAL) THROUGH THE MANHOLE.
- SEWER PERMIT AND CITY INSPECTION REQUIRED FOR ALL CONNECTIONS TO STORM AND SANITARY SEWER SYSTEMS. SEWER PERMIT REQUIRED ON SITE DURING ANY SEWER CONSTRUCTION.
- TOP OF MANHOLE FRAMES TO BE SET AT PROPOSED YARD OR SIDEWALK GRADE WHEN LOCATED IN FRONT YARD AREA OF LOT OR RIGHT-OF-WAY. WHEN MANHOLE IS IN A TRAVELED WAY, THE TOP OF THE LID SHALL BE FLUSH WITH THE FINAL SURFACE, AND BACKFILL SHALL BE GRANULAR TO SURFACE. IN ALL OTHER AREAS THE TOP OF THE FRAME SHALL BE ONE FOOT ABOVE THE SURROUNDING GRADE, SLOPING AWAY FROM THE MANHOLE FOR A DISTANCE OF 6'-0" IN ALL DIRECTIONS.
- WHERE PROPRIETARY EQUIPMENT IS SPECIFIED, "OR APPROVED EQUAL" IS IMPLIED. ALL PROPOSALS FOR SUBSTITUTION SHALL BE SUBMITTED TO THE CITY IN WRITING FOR THEIR APPROVAL.
- MARK THE LOCATIONS OF THE SANITARY SEWER LATERALS BY STAMPING OR CUTTING "SS" IN THE CURB. SIMILARLY, STAMP OR CUT MH IN THE CURB TO MARK THE LOCATIONS OF MANHOLES.

9 TELEVISION INSPECTION CRITERIA

SANITARY SEWERS

SEWERS SHALL BE "FLOODED" BEFORE TELEVISION INSPECTION. THE IMAGE SHALL BE CLEAR ENOUGH TO ENABLE THE CITY REPRESENTATIVE AND OTHERS VIEWING THE MONITOR TO EASILY EVALUATE THE INTERIOR CONDITION OF THE PIPE.

ALL UNACCEPTABLE CONDITIONS FOUND DURING TELEVISION INSPECTION MUST BE CORRECTED BY THE CONTRACTOR AND RETELEVISIONED.

UNACCEPTABLE CONDITIONS ARE CONDITIONS THAT ADVERSELY EFFECT THE ABILITY OF THE SYSTEM TO FUNCTION AS DESIGNED OR TO BE PROPERLY MAINTAINED AND MAY INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- PROTRUDING TAPS
- CRACKED OR FAULTY PIPE
- MISALIGNED OR DEFORMED PIPE
- DEBRIS IN LINE
- INFILTRATION/EXFILTRATION
- EXCESSIVE GAPS AT JOINTS
- BELLIES OR SAGS WITH A DEPTH GREATER THAN OR EQUAL TO 10% (OR A MAXIMUM OF 1 1/2") OF PIPE DIAMETER AND/OR A LENGTH GREATER THAN 25 FEET

DETAILS AS TO REQUIRED TELEVISION EQUIPMENT AND REQUIRED TELEVISION INSPECTION REPORT ARE AVAILABLE FROM THE DELPHI BOARD OF WORKS.

CITY OF DELPHI

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(765) 564-2234	FIRE DEPT.
(765) 564-2345	POLICE DEPT.
(765) 564-2353	STREET DEPT.
(765) 564-5127	PARKS & REC.

201 SOUTH UNION STREET
DELPHI, INDIANA 46923

SANITARY SEWER
TYPICAL DETAILS AND NOTES

DATE
April 2008

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DIAMETER OF CASING	WALL THICKNESS (IN.)	
	<u>UNDER HIGHWAY</u>	<u>UNDER RAILROAD</u>
16" OR SMALLER	0.250	0.312
18"	0.250	0.312
20"	0.312	0.344
24"	0.375	0.438
30"	0.500	0.563
THROUGH 42"	0.625	0.625
48"	0.875	0.875
54"	1.00	1.00
66"		

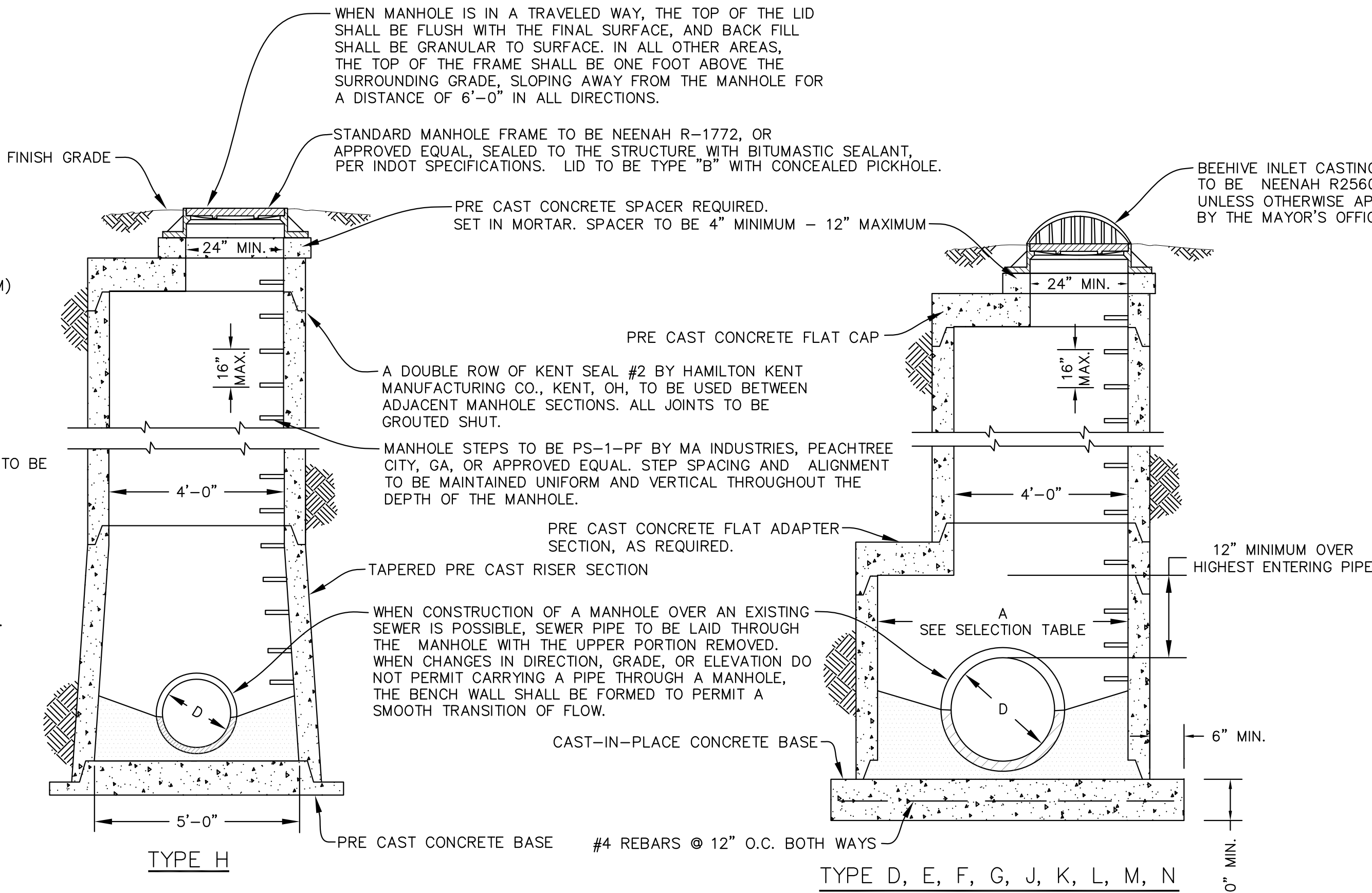
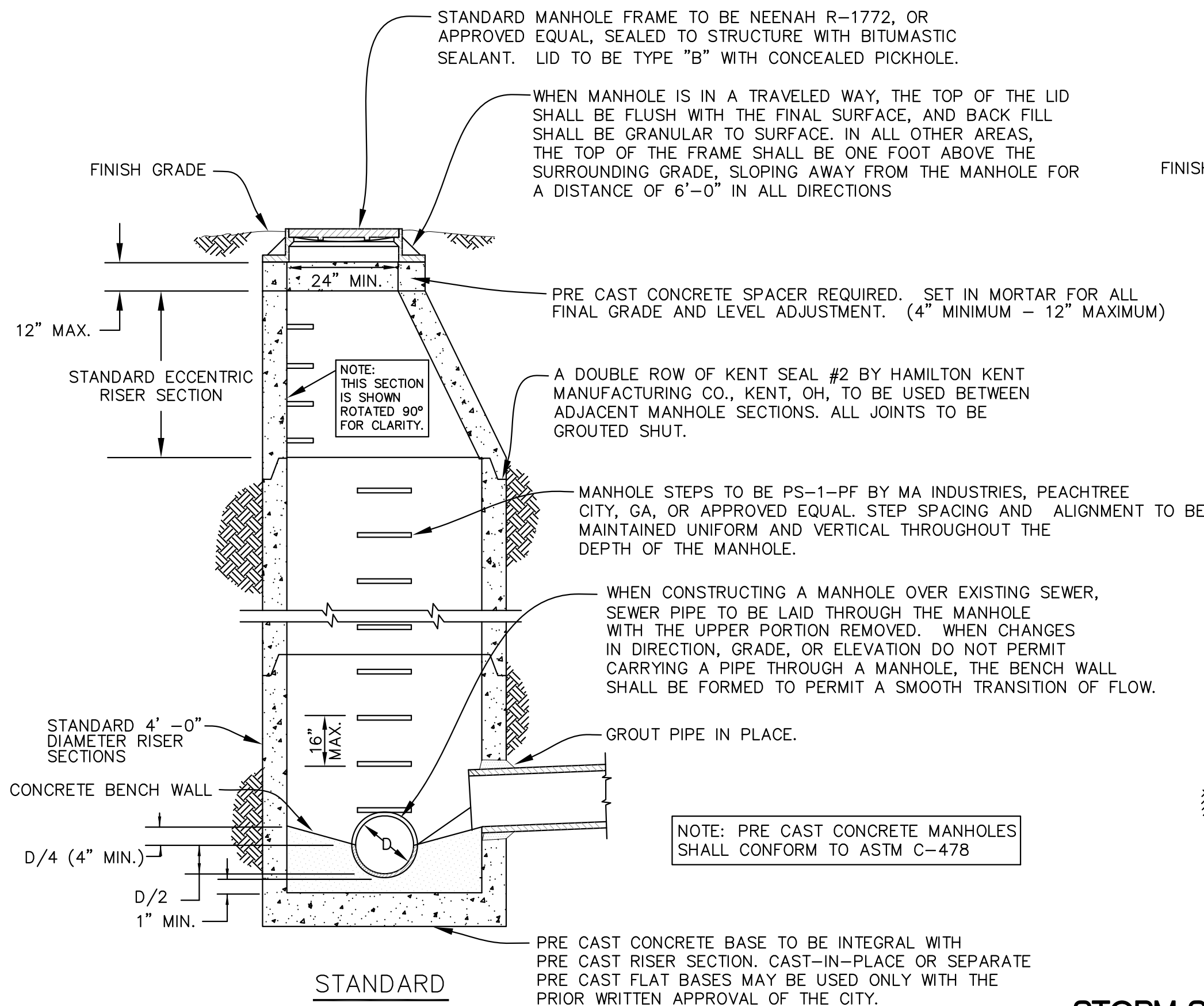
6 CASING SPECIFICATION

7 GENERAL NOTES

1. ALL PROPOSALS WITH FLOW CALCULATIONS SHALL BE SUBMITTED TO THE CITY IN WRITING FOR THEIR APPROVAL.
2. GREASE TRAP MINIMUM CAPACITY: 1,000 GALLONS.
3. DETAIL SHOWS GENERAL SCHEMATIC REQUIREMENT.
4. ADEQUATE STRUCTURAL STRENGTH SHOULD BE PROVIDED TO ACCOMMODATE VEHICULAR TRAFFIC.
5. WHENEVER PROPRIETARY EQUIPMENT IS SPECIFIED, "OR APPROVED EQUAL" IS IMPLIED.

5 STORM SEWER NOTES

- STORM SEWER PIPE AND APPURTENANCES SHALL CONFORM TO CITY OF DELPHI STANDARDS FOR WATER, WASTEWATER AND STORM SEWERS, THE DELPHI SUBDIVISION ORDINANCE AND OTHER CITY OF DELPHI ORDINANCE(S) IF APPLICABLE.
- CONSTRUCTION PROCEDURES AND MATERIALS SHALL COMPLY WITH APPLICABLE SECTIONS OF THE INDIANA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS LATEST EDITION
- PIPE AND FITTINGS USED IN STORM SEWER CONSTRUCTION SHALL BE DUCTILE IRON PIPE (AWWA C-151), CONCRETE PIPE (ASTM C-76), PVC PIPE (4"-24" ONLY; ASTM 3034-SDR 35; ASTM F-679, OR ASTM F-794). HOBAS PIPE (24" AND LARGER ONLY; ASTM D3262, D4161, D2412, FIBERGLASS SLEEVE COUPLINGS USING ELASTOMERIC SEALING GASKETS MADE OF EPDM COMPOUND PER ASTM D 4161), ADS N-12 (4"-36") AND ADS N-12HC (42"-48" ONLY) DUAL WALL SINGLE MOLD HDPE PIPE WITH WATER TIGHT INTEGRAL BELL COUPLERS (AASHTO M-294, ASTM F-667). OTHER PIPE AND FITTINGS NOT SPECIFIED HEREIN MAY BE USED ONLY WHEN SPECIFICALLY AUTHORIZED IN WRITING BY THE CITY.
- ALL STORM SEWERS SHALL BE HIGH PRESSURE WATER JET CLEANED, MAINLINE STORM SEWERS AND LATERAL STORM SEWERS THAT ARE 36" DIAMETER OR LESS SHALL BE SUBJECTED TO A DEFLECTION TEST USING A GO-NO-GO MANDREL (0.5% DIAMETER) WHEN CONSTRUCTED USING FLEXIBLE PIPE CONDUIT MATERIALS. MAINLINE STORM SEWERS AND LATERAL STORM SEWERS THAT ARE GREATER THAN 36" DIAMETER REQUIRE THIRD PARTY TESTING AND CERTIFICATION (DAILY) OF THE BEDDING INSTALLATION WHEN CONSTRUCTED USING FLEXIBLE PIPE CONDUIT MATERIAL. CLEANING AND TESTING SHALL BE PERFORMED A MINIMUM OF 30 DAYS AFTER INSTALLATION, AND SHALL BE WITNESSED BY THE CITY. ALL COSTS OF CLEANING AND TESTING ARE TO BE BORNE BY THE CONTRACTOR.
- TRENCHES UNDER PAVED AREAS (EXCLUDING SIDEWALKS) SHALL BE BACK FILLED WITH GRANULAR MATERIAL PER INDIANA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS 1999 EDITION SECTION 211 AND COMPACTED IN LIFTS. GRANULAR MATERIAL TO EXTEND FIVE FEET BEYOND THE LIMITS OF THE PAVED AREA WITH A 1:1 SLOPE TO THE BOTTOM OF THE TRENCH.
- CONFIGURATION OF INLETS IN PRIVATE PARKING OR DRIVING AREAS MAY BE VARIED TO ACCOMMODATE THE DIMENSIONS OF THE CASTINGS. PRIOR WRITTEN APPROVAL OF THE CITY IS REQUIRED.
- 18" VERTICAL SEPARATION AND 10'-0" HORIZONTAL SEPARATION TO BE MAINTAINED BETWEEN WATER MAINS, HYDRANTS AND SEWERS (SANITARY AND STORM).
- SEWER PERMIT AND CITY INSPECTION REQUIRED FOR ALL CONNECTIONS TO STORM OR SANITARY SEWER SYSTEMS SEWER PERMIT REQUIRED ON SITE DURING ANY SEWER CONSTRUCTION
- ALL TAPS TO CONCRETE PIPE SHALL BE MADE WITH BOOT AND SADDLE CONNECTORS
- ALL INLETS SHALL BE DEPRESSED 0.1 FT. BELOW PLAN GRADE.
- ALL SEWER LINES SHALL HAVE 0.1 FT. DROP THROUGH MANHOLES.
- CASTINGS SHALL BE CENTERED ON OPENING IN STRUCTURES.
- MINIMUM 4" OPENING REQUIRED ON BACK OF CURB INLET CASTING.
- TOP OF MANHOLE FRAMES TO BE SET AT PROPOSED YARD OR SIDEWALK GRADE WHEN LOCATED IN FRONT AREA OF LOT OR RIGHT OF WAY.
- BICYCLE SAFE GRATES REQUIRED IN PAVED AREAS EXCLUDING, PAVED FLOW LINES IN SWALES OR DETENTION AREAS
- ANIMAL GUARDS SHALL BE PERMANENTLY INSTALLED ON ALL PIPE END SECTIONS 18" OR LARGER IN DIAMETER. GUARDS SHALL HAVE A MAXIMUM CLEAR OPENING OF 4" AND BE REMOVABLE.
- IF ANY EXISTING FIELD TILE SYSTEMS ARE ENCOUNTERED DURING THE CONSTRUCTION PROCESS THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECONSTRUCTING THE TILE TO ITS ORIGINAL CONDITIONS OR CONNECT IT INTO THE PROPOSED STORM DRAINAGE SYSTEM
- WHENEVER PROPRIETARY EQUIPMENT IS SPECIFIED OR APPROVED "EQUAL IS IMPLIED ALL, PROPOSALS FOR SUBSTITUTION SHALL BE SUBMITTED TO THE CITY IN WRITING FOR THEIR APPROVAL .

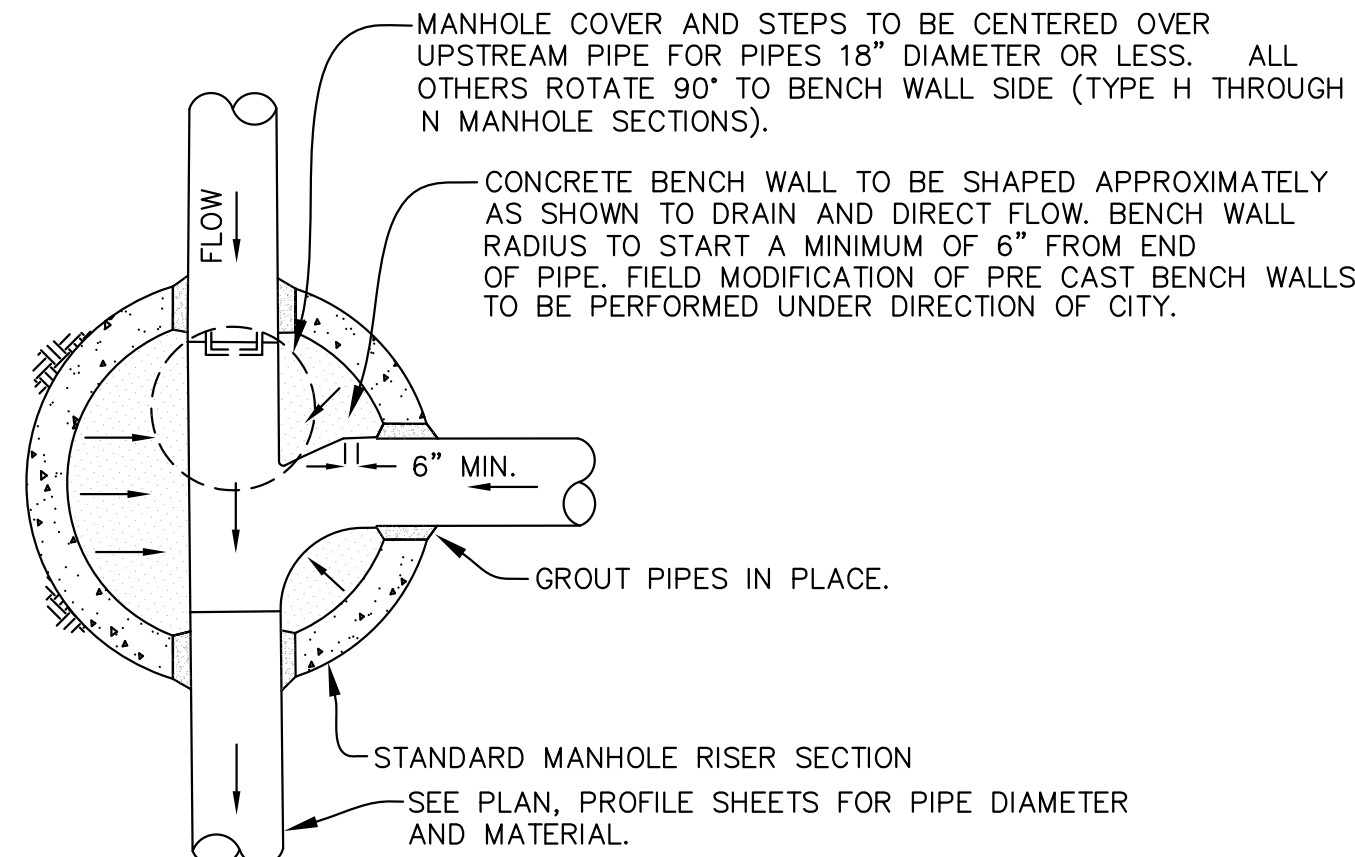


1 STORM SEWER MANHOLE SECTIONS

NOT TO SCALE

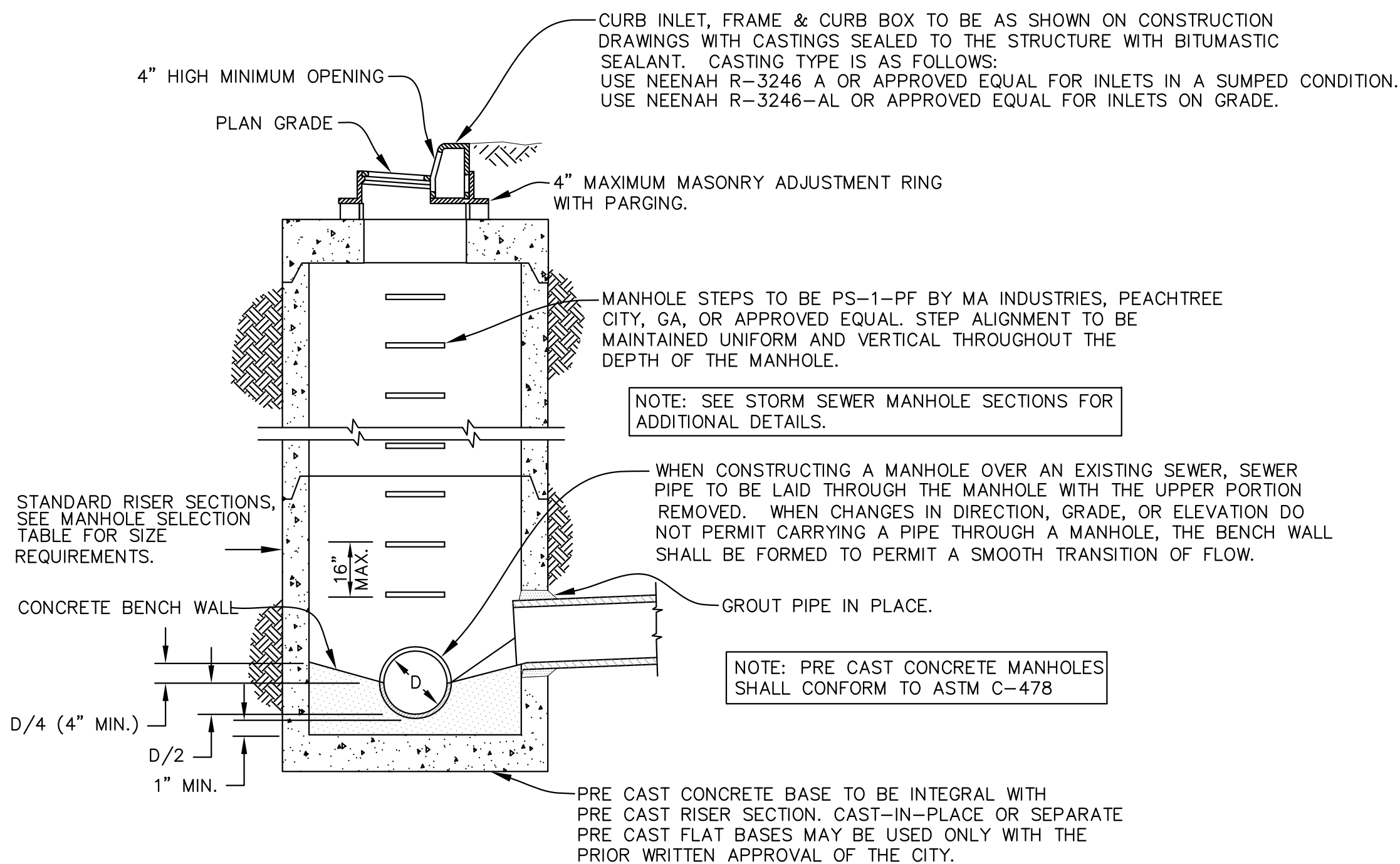
MANHOLE SELECTION TABLE - CIRCULAR				
TYPE	PIPE DIAMETER D	RISER DIAMETER A	MAXIMUM PIPE SIZE FOR MAIN LINE	MAXIMUM PIPE SIZE 90° TO MAIN LINE
STANDARD	UP TO 24"	48"	24"	24"
H	24"-36"	--	36"	30"
J	24"-36"	60"	36"	30"
K	36"-48"	72"	48"	36"
L	48"-54"	96"	54"	48"
M	54"-72"	102"	72"	66"
N	72"-84"	108"	84"	72"

MANHOLE SELECTION TABLE RECTANGULAR		
TYPE	PIPE DIAMETER D	WIDTH (MIN) A
STANDARD	UP TO 24"	48"
D	27"-42"	60"
E	48"-60"	78"
F	66"-84"	108"
G	90"-108"	132"



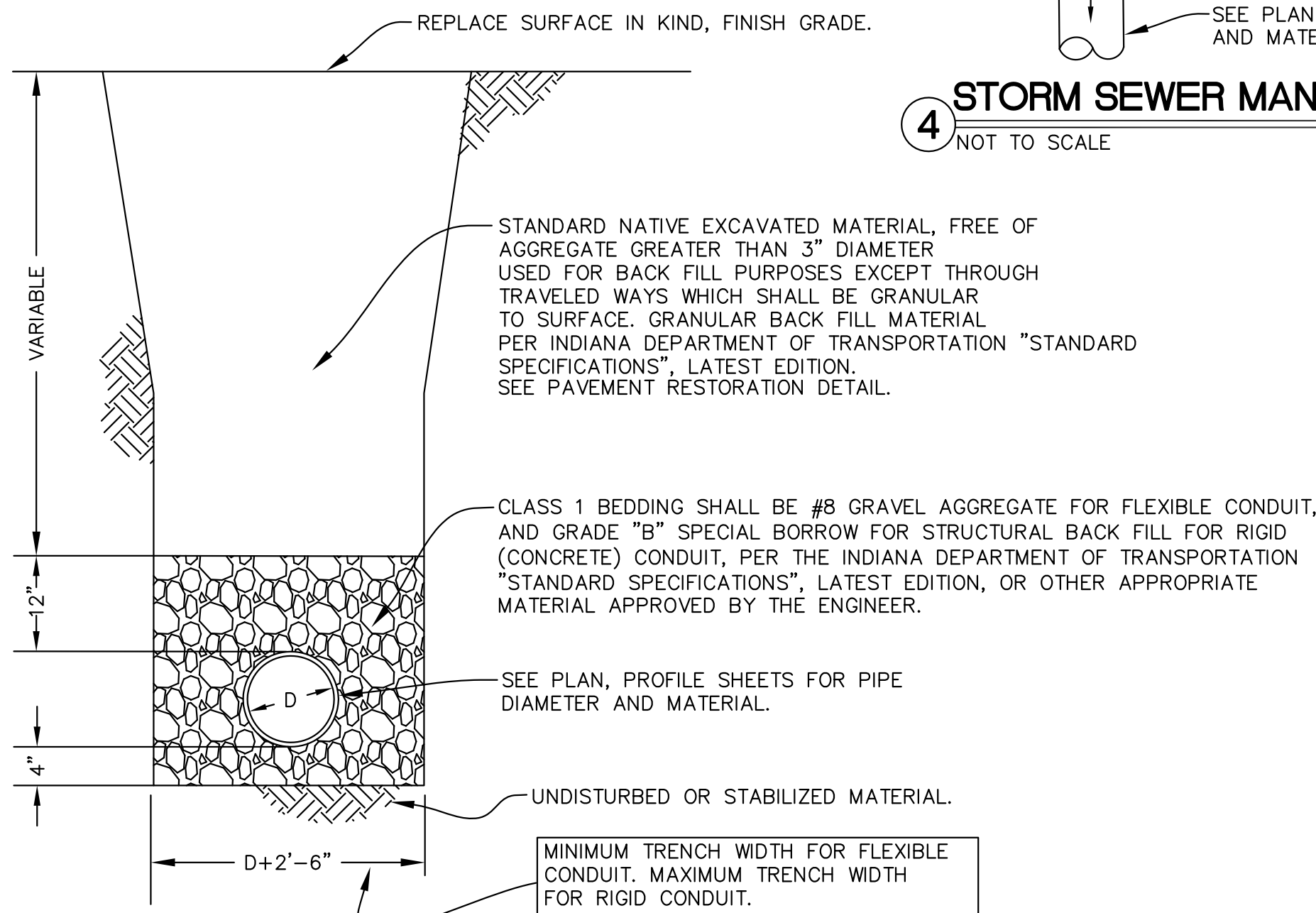
4 STORM SEWER MANHOLE PLAN

NOT TO SCALE



2 STORM SEWER MANHOLE - INLET

NOT TO SCALE



3 STANDARD BEDDING DETAIL

NOT TO SCALE

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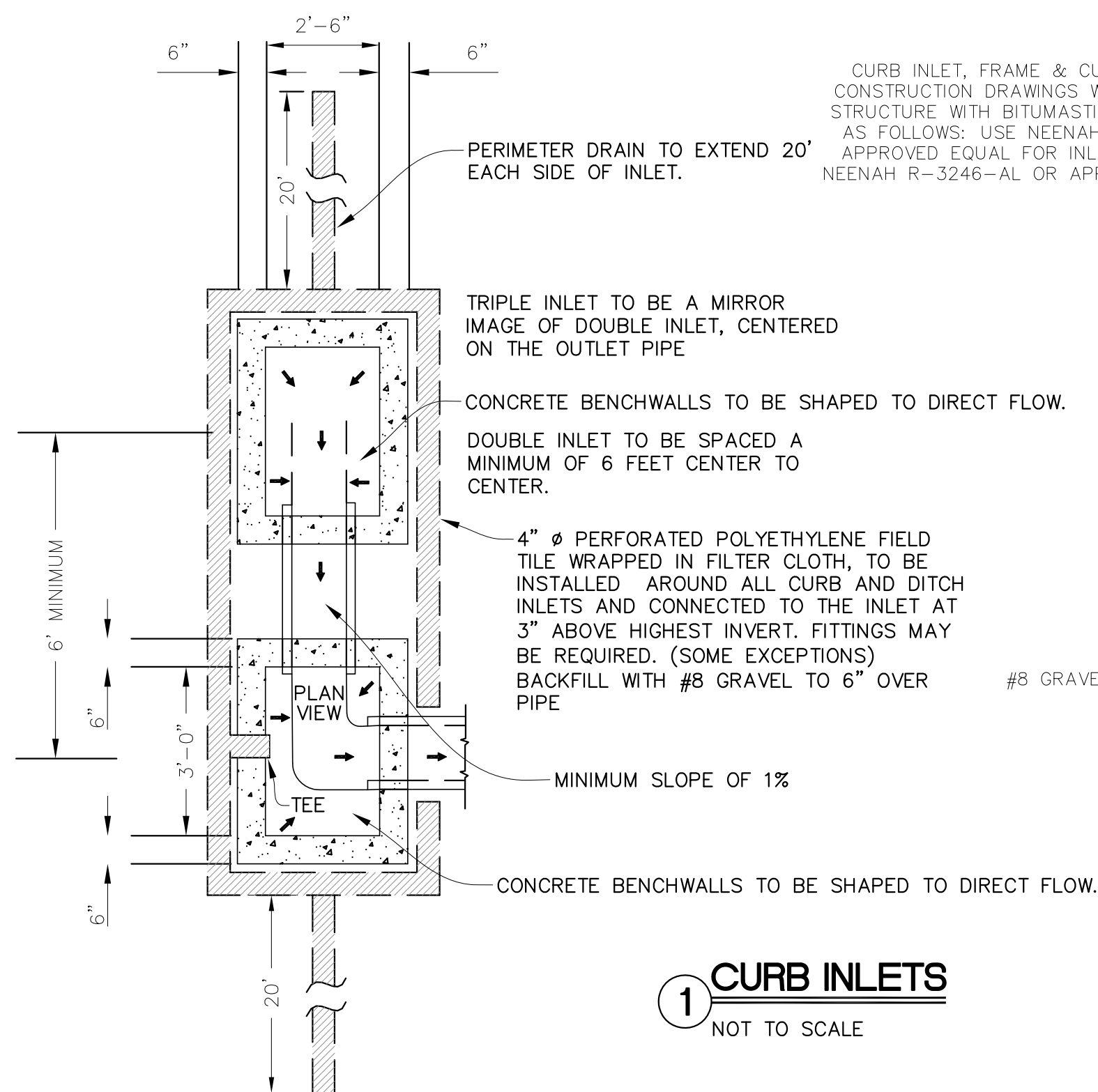
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DEPARTMENT
WATER WORKS
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POLICE DEPT.
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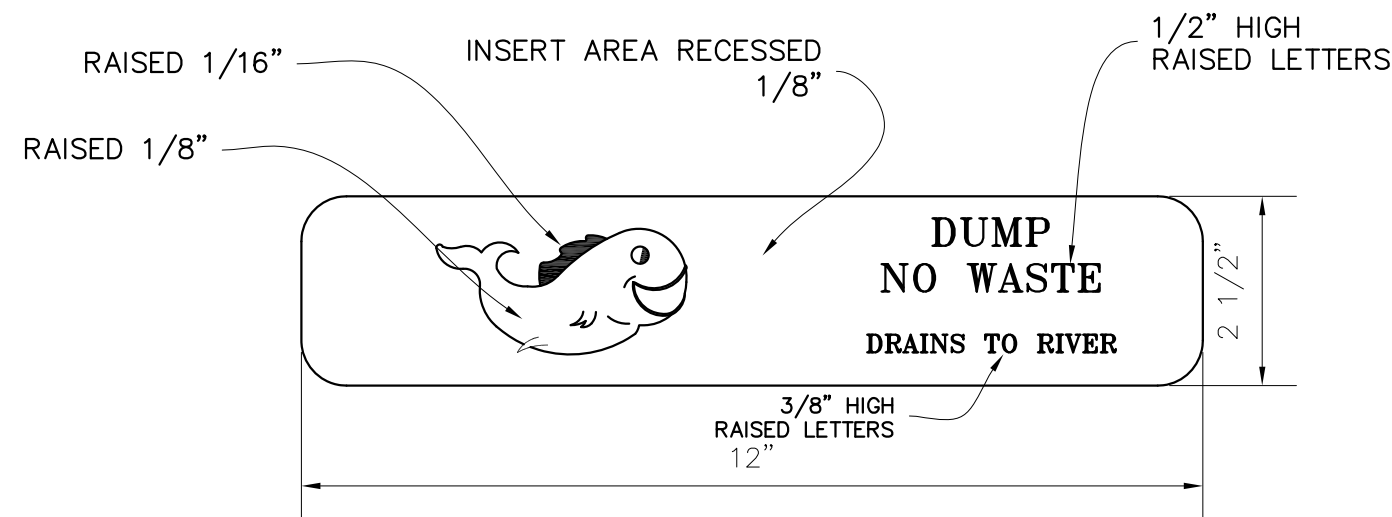
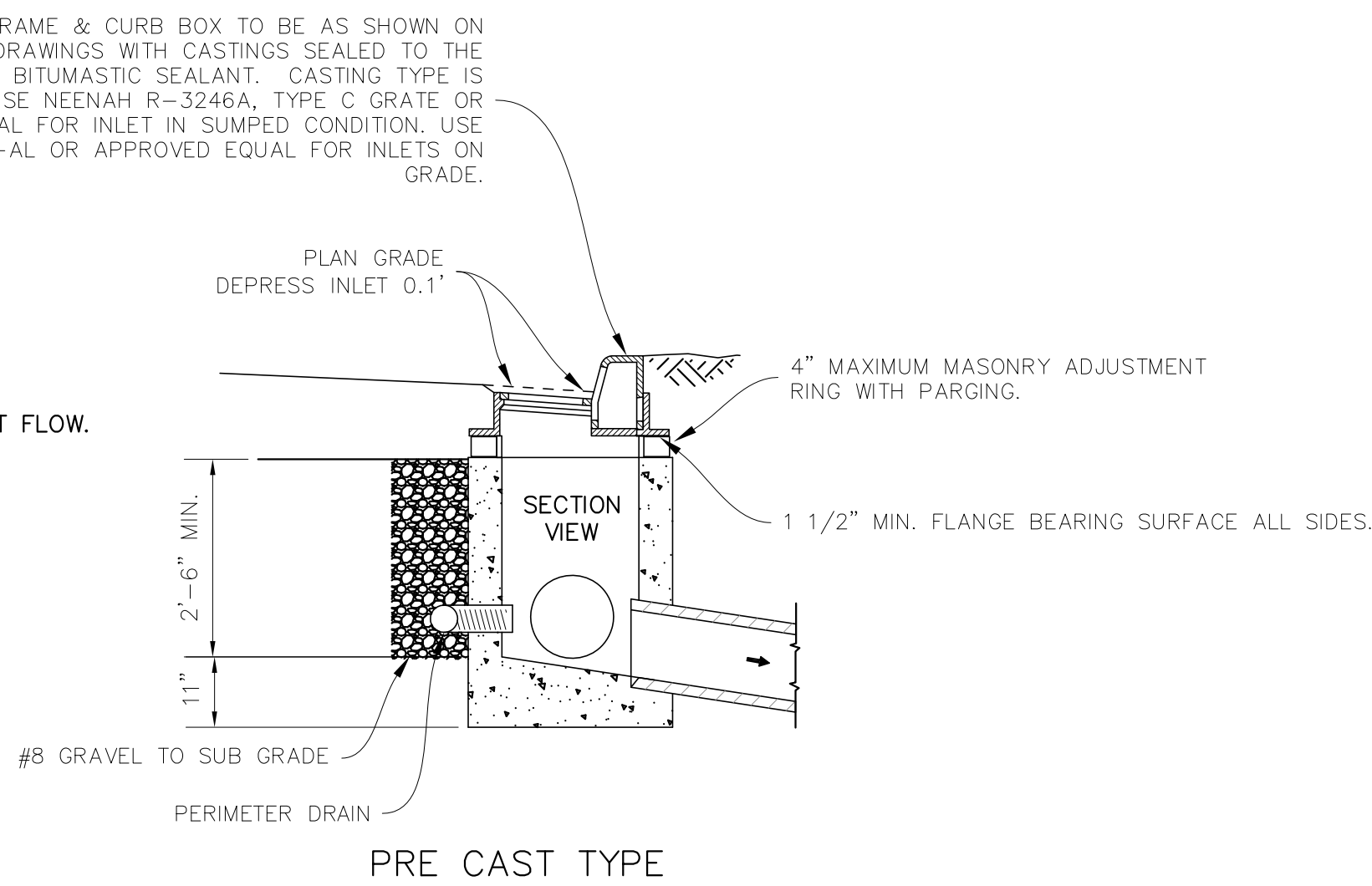
STORM SEWER
TYPICAL DETAILS AND NOTES

DATE
April 2008

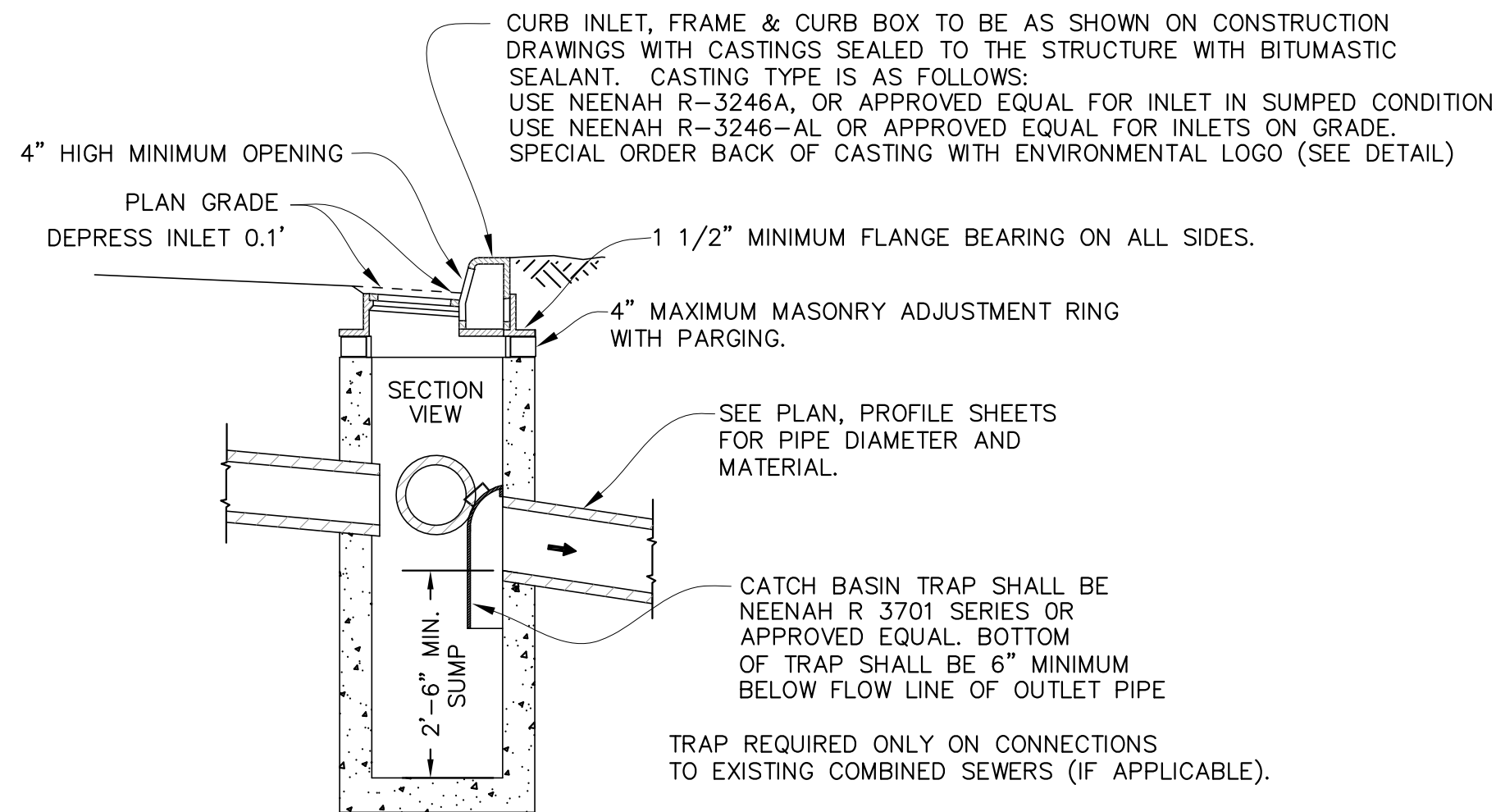
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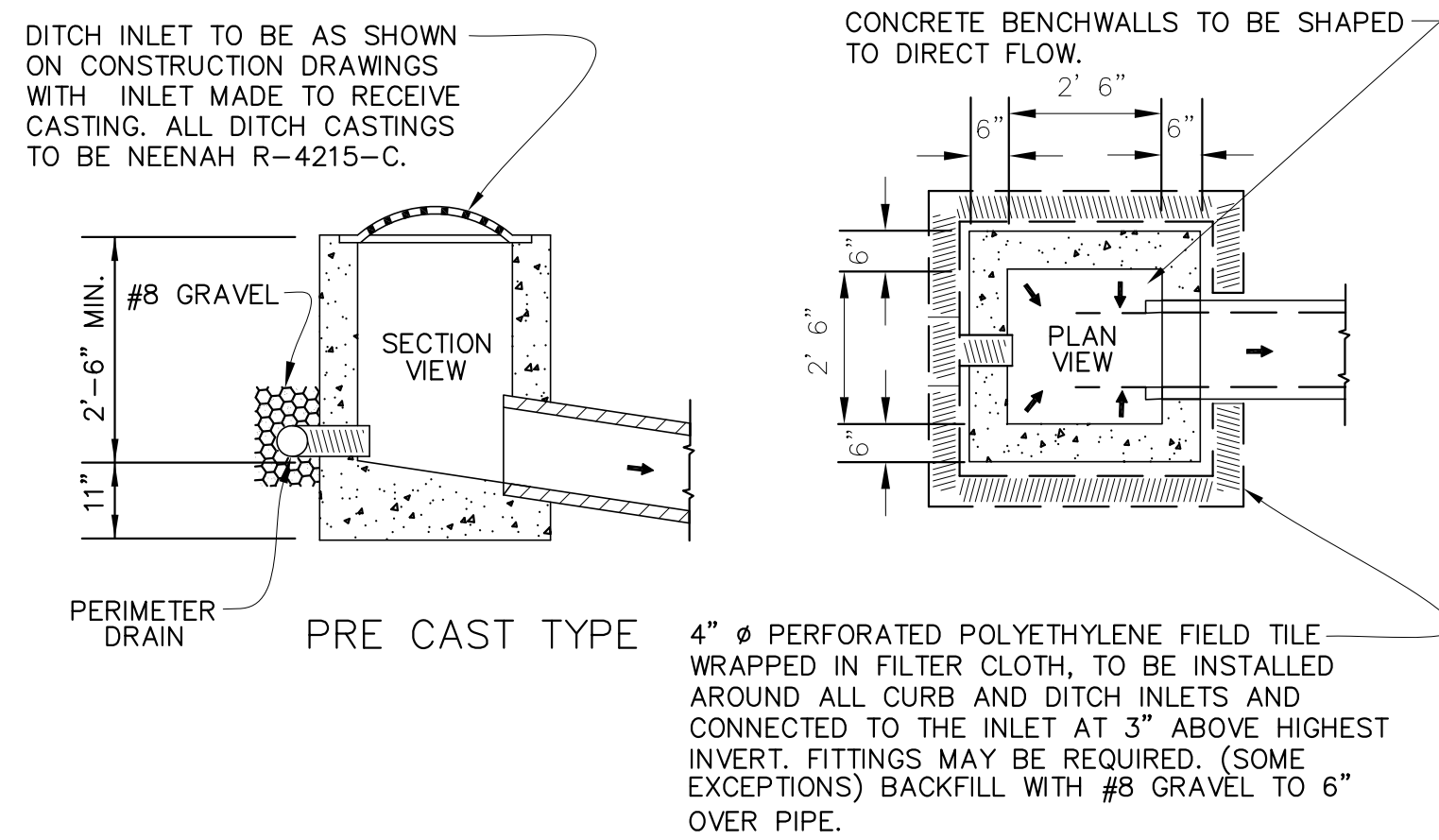
1 CURB INLETS
NOT TO SCALE



2 LOGO DETAIL (TOP OF BOX)
NOT TO SCALE



3 CATCH BASIN
NOT TO SCALE



4 DITCH INLETS
NOT TO SCALE

5 GENERAL NOTES

- WHENEVER PROPRIETARY EQUIPMENT IS SPECIFIED, "OR APPROVED EQUAL" IS IMPLIED. ALL PROPOSALS FOR SUBSTITUTION SHALL BE SUBMITTED TO THE CITY IN WRITING FOR THEIR APPROVAL.
- PRIOR WRITTEN APPROVAL OF ENGINEER'S OFFICE FOR USE OF CAST IN PLACE OR MASONRY STRUCTURES.

CITY OF DELPHI

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201 SOUTH UNION STREET
DELPHI, INDIANA 46923

STORM SEWER STRUCTURES,
DRAINAGE AND EROSION CONTROL
TYPICAL DETAILS AND NOTES

DATE
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