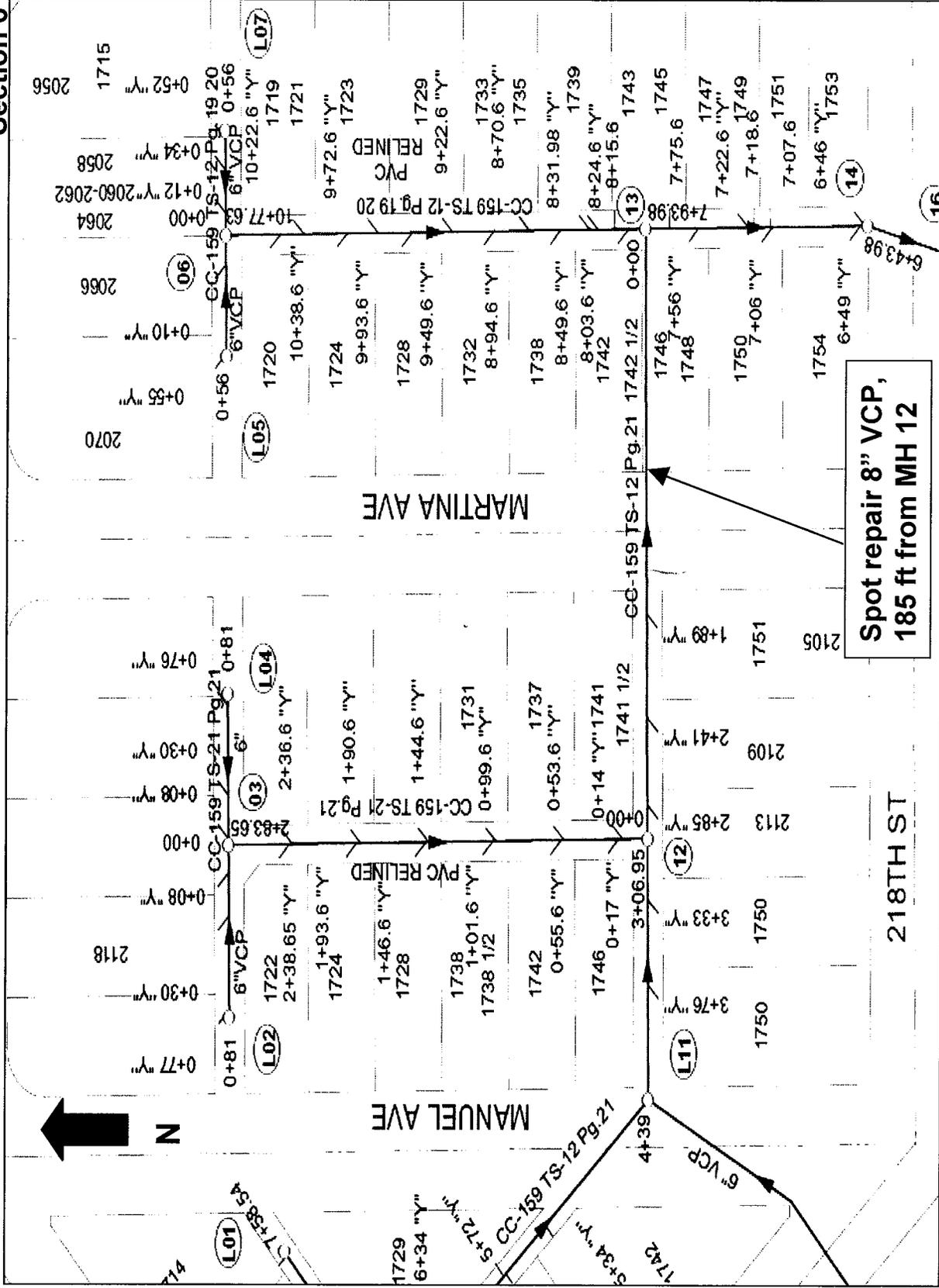


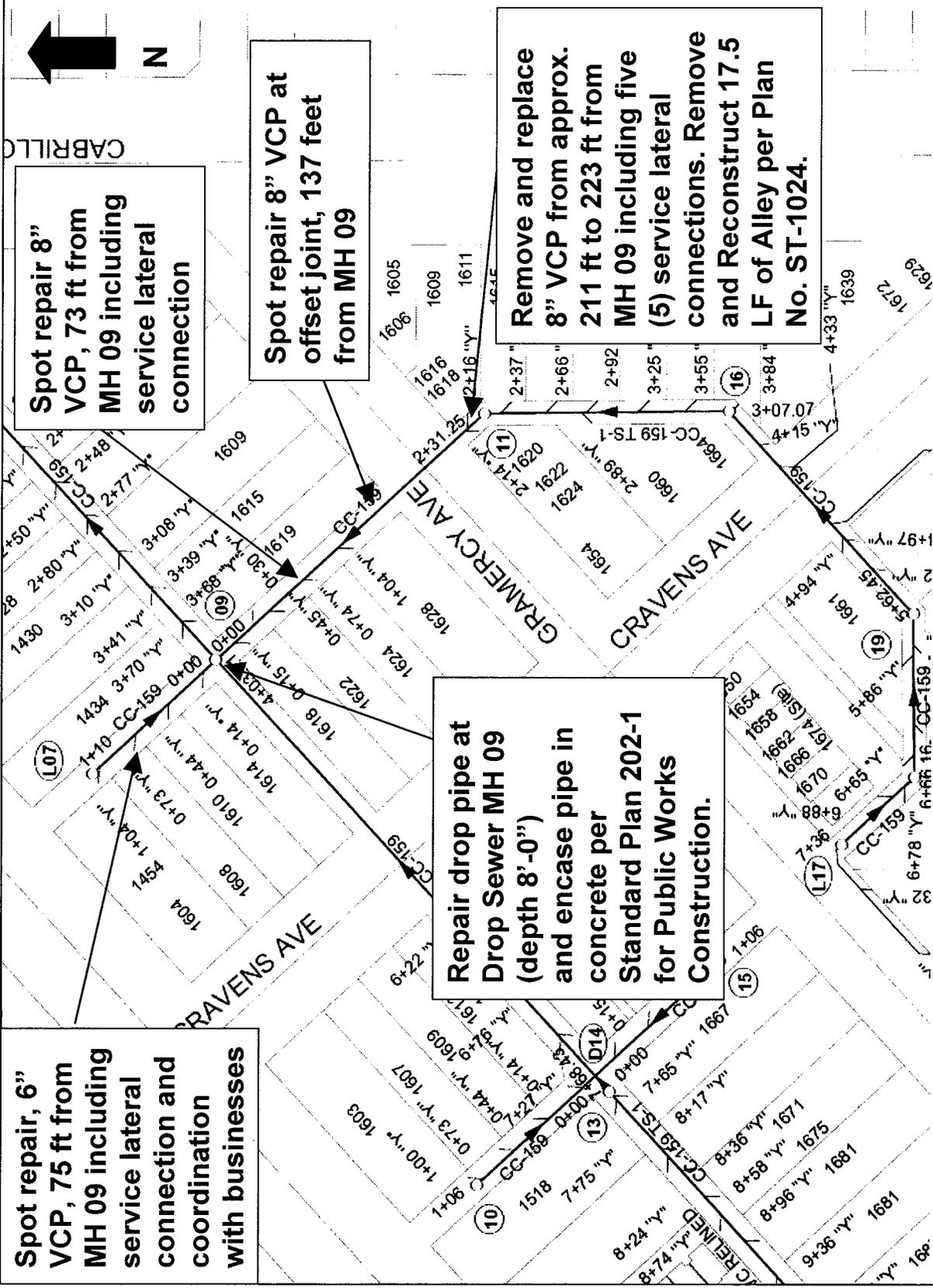
APPENDIX I

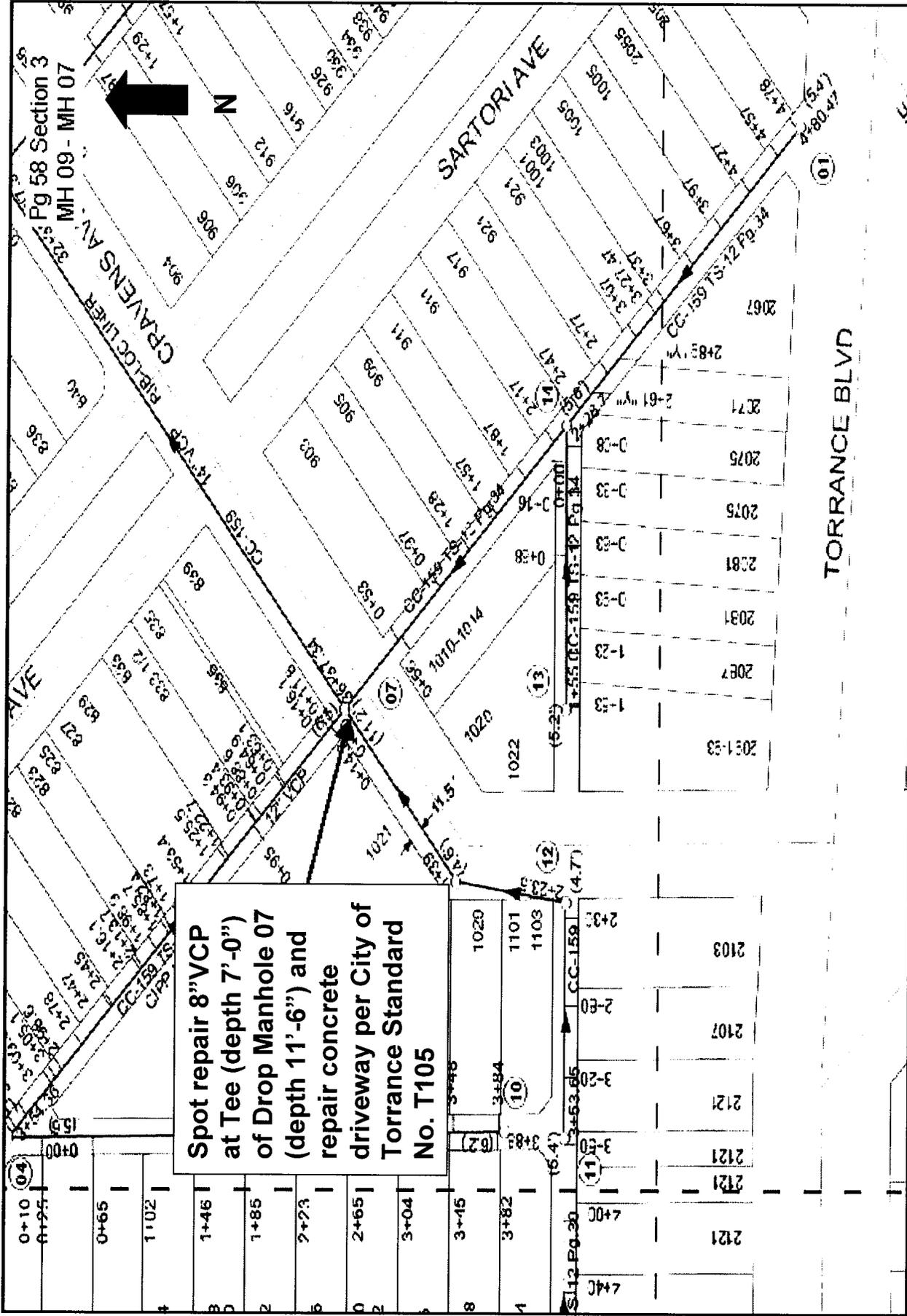
DRAWINGS

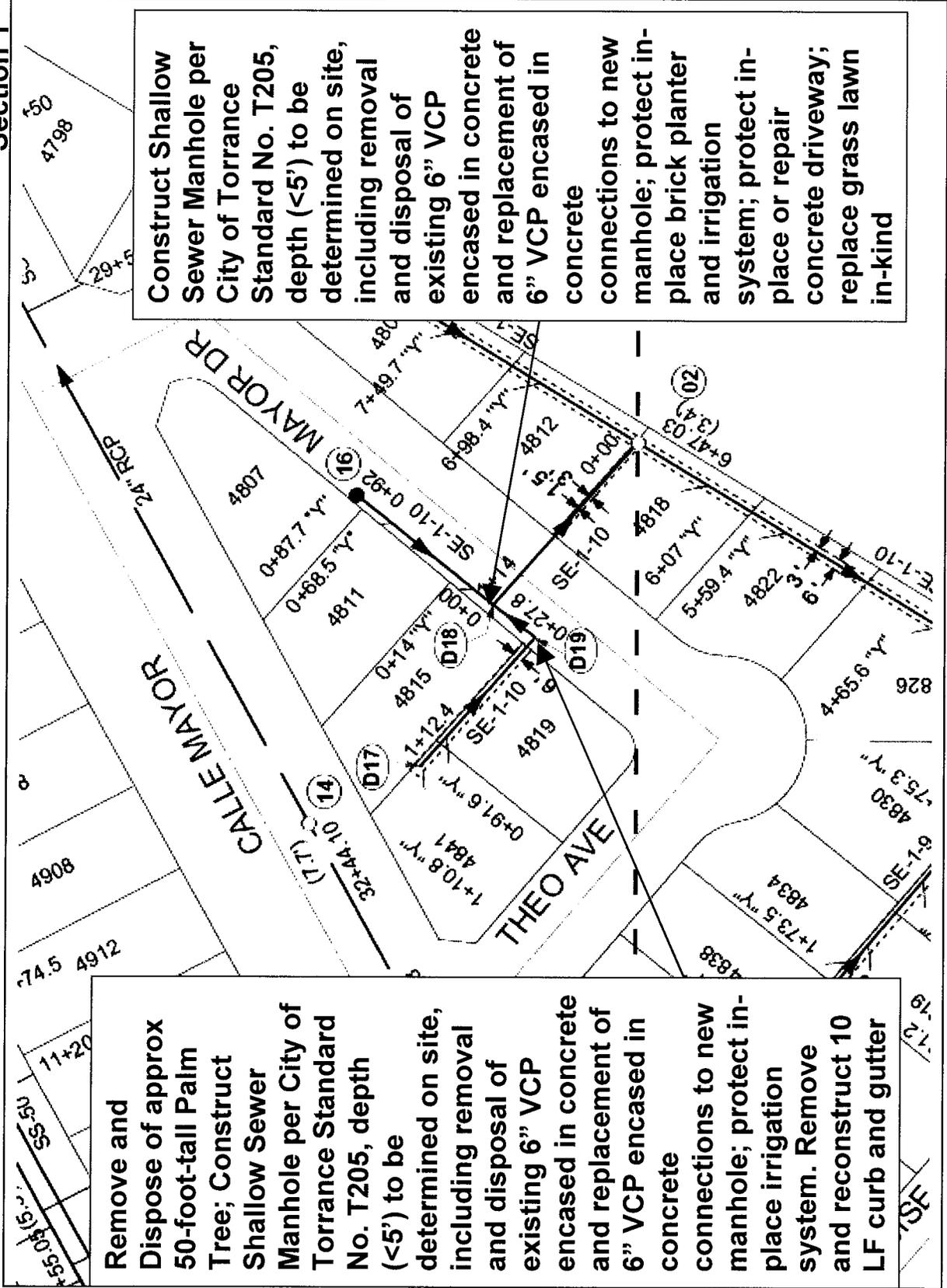
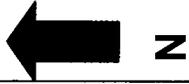
AND PLAN No. ST-1024

City Index Sheet 65
Section 6







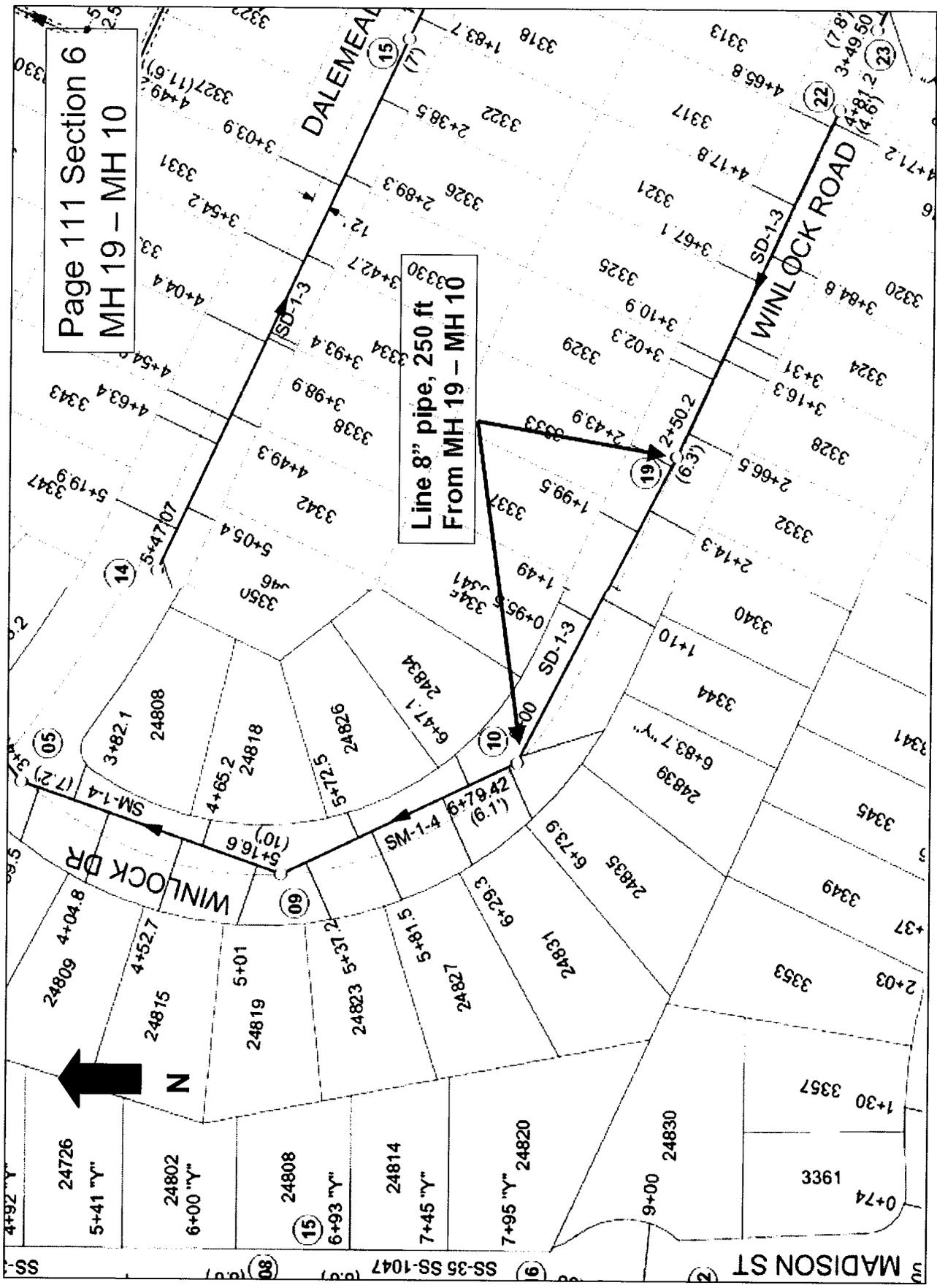


Remove and Dispose of approx 50-foot-tall Palm Tree; Construct Shallow Sewer Manhole per City of Torrance Standard No. T205, depth (<5') to be determined on site, including removal and disposal of existing 6" VCP encased in concrete and replacement of 6" VCP encased in concrete connections to new manhole; protect in-place irrigation system. Remove and reconstruct 10 LF curb and gutter

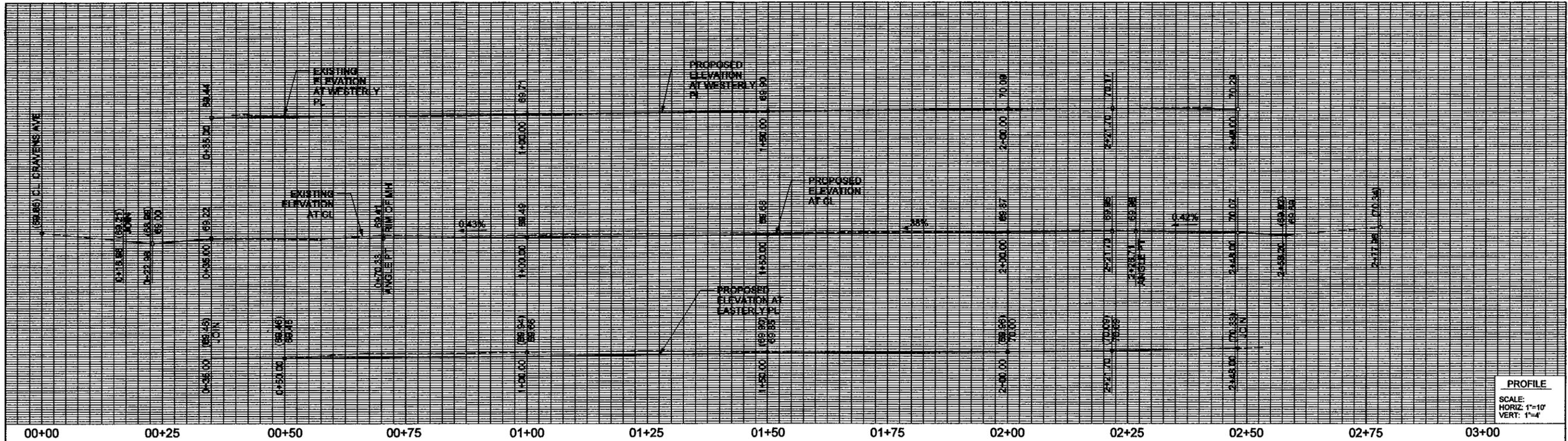
Construct Shallow Sewer Manhole per City of Torrance Standard No. T205, depth (<5') to be determined on site, including removal and disposal of existing 6" VCP encased in concrete and replacement of 6" VCP encased in concrete connections to new manhole; protect in-place brick planter and irrigation system; protect in-place or repair concrete driveway; replace grass lawn in-kind

Page 111 Section 6
MH 19 - MH 10

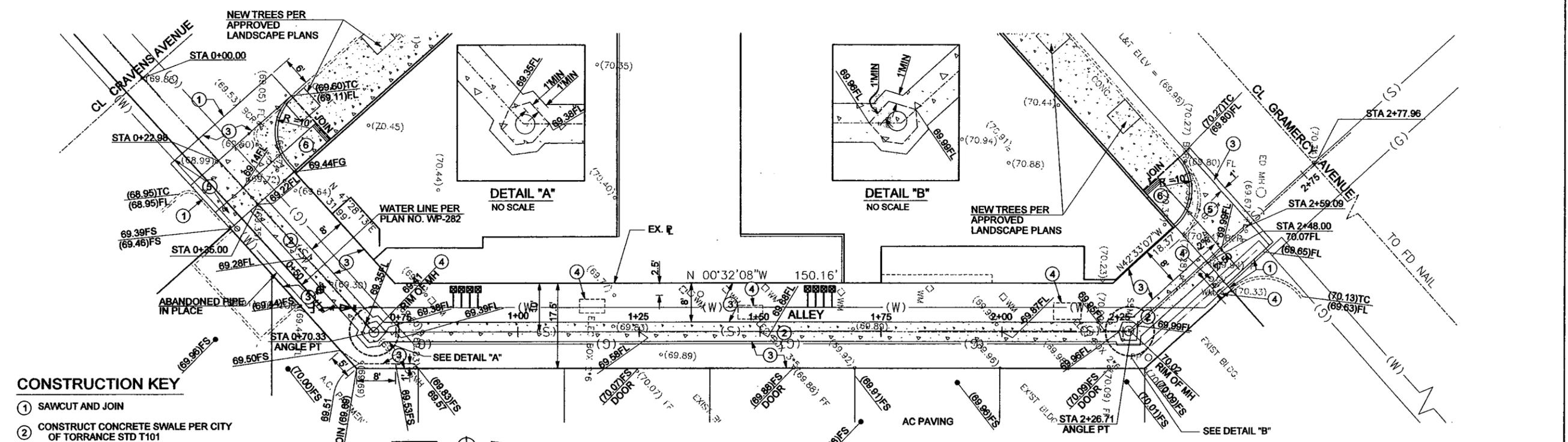
Line 8" pipe, 250 ft
From MH 19 - MH 10



Drawing 6



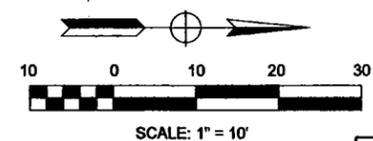
PROFILE
SCALE:
HORIZ: 1"=10'
VERT: 1"=4'



CONSTRUCTION KEY

- ① SAWCUT AND JOIN
- ② CONSTRUCT CONCRETE SWALE PER CITY OF TORRANCE STD T101
- ③ CONSTRUCT 4" ASPHALT PAVEMENT OVER 6" C.A.B. OR CMB OR MATCH EXISTING IF >4"
- ④ ADJUST TO GRADE
- ⑤ CONSTRUCT ALLEY APRON PER APWA STD 130-1 WITH MAKE UP PAVING AS SHOWN
- ⑥ CONSTRUCT RAMP PER APWA STD 111

NOTES:
1. PROTECT ALL EXISTING BOLLARDS ALONG EAST SIDE OF ALLEY.
2. EXISTING WATER METERS THAT REMAIN SHALL BE ADJUSTED TO GRADE.



PLANS PREPARED BY:
JOHN M. CRUIKSHANK CONSULTANTS, INC.
411 N. HARBOR BLVD., SUITE 201
SAN PEDRO, CA 90731
310.241.6550
310.320.8871

REV.	DATE	DESCRIPTION	BY	CHECKED

**CITY OF TORRANCE
COMMUNITY DEVELOPMENT DEPARTMENT**

DRAWN: PRIVATE ENGINEER	RECOMMENDED:
DESIGNED: PRIVATE ENGINEER	<i>[Signature]</i>
PROJECT ENGINEER: <i>Tak Symma</i>	JEFFERY GIBSON COMMUNITY DEVELOPMENT DIRECTOR
APPROVED: <i>[Signature]</i> 3/17/10	DATE
TOLUFGA BEMAN ENGINEERING DIVISION MANAGER R.C.E. #59228 EXP: 5-30-2011	SCALE: AS SHOWN SHEET 2 OF 2
PLAN NO. ST-1024	

APPENDIX II

**CITY OF TORRANCE PERMIT
AND BUSINESS LICENSE**



City of Torrance, Community Development Department
Permit Application Form
 3031 TORRANCE BLVD. • TORRANCE, CA 90503

OWNER/APPLICANT INFORMATION

Name: _____
 Address: _____
 City/State: _____
 Zip: _____
 Telephone: _____
 Fax: _____

Excavation permits will not be issued without USA I.D. Number.

Underground Service Alert
 Call: 811

USA I.D. # _____
 Date Received: _____

CONTRACTOR INFORMATION

 State License #: _____
 Class: _____ Exp. Date: _____
 City Business #: _____

**CONTRACTOR: Certificate of Insurance
 REQUIRED prior to issuance of permit.**

JOB LOCATION/ADDRESS (closest street address)

Please list cross streets: _____

DESCRIPTION OF WORK

LF Trench _____ Width of Trench _____ LF Curb & Gutter _____
 LF Bore _____ Sewer Connection _____ Number of Curb Drains _____
 SF Asphalt _____ SF Concrete _____

Work Order Number (for utility companies): _____
 Applicant or Authorized Signature: _____

For further permit information, please call 310-618-5898 or fax 310-618-2846.

Contractor License Requirements

Curb/Gutter.....	A (General Engineering) C8 (Concrete Contractor)	Sewer Lateral/Mainline.....	A (General Engineering) C34 (Pipeline Contractor) C42 (Sanitation Contractor)
Driveways.....	A (General Engineering) C8 (Concrete Contractor)	Storm Drain Lateral/Mainline.....	A (General Engineering) C34 (Pipeline Contractor) C42 (Sanitation Contractor)
Sidewalks.....	A (General Engineering) B (General Building) C8 (Concrete Contractor)	U/G Utilities.....	A (General Engineering) (Water, Gas or Oil).....C34 (Pipeline Contractor)
Street/Alley.....	A (General Engineering) C8 (Concrete Contractor) C12 (Earth and Paving Contractor)	U/G Electrical.....	A (General Engineering) C8 (Concrete Contractor) C12 (Earth and Paving Contractors)

Standard Requirements

- 1) **SCHEDULE INSPECTIONS 24 HOURS IN ADVANCE** (pre-job, work start, interim, final). Call 310-618-5898 between working hours of 7:30 AM – 5:30 PM. **Pre-job meetings for WATER permits shall be scheduled 72 hours in advance.**
- 2) **TRAFFIC CONTROL** shall be per City of Torrance standards or Manual on Uniform Traffic Control Devices (MUTCD). Street closure shall be per City of Torrance Standard T603. Major street lane closures between 8:30 AM – 3:30 PM only. **ONE STANDARD ARROWBOARD REQUIRED FOR EACH LANE CLOSURE.**
- 3) Do not remove any trees or shrubs without approval of Torrance Public Works Department/Streetscape (310-781-6900).
- 4) **Contractor will be billed for overtime inspection services.** OVERTIME REQUESTS must be submitted for approval 24 hours in advance.
- 5) Construction site **CLEANUP** and **GRAFFITI (USA MARKINGS)** removal must be completed prior to finaling of this permit. Any graffiti on construction signs must be removed or the sign replaced within 24 hours of notification.
- 6) Any street striping, crosswalk, raised reflective pavement marker or pavement markings damaged by this construction shall be replaced to the satisfaction of the Torrance Public Works Department/Traffic Division (310-781-6900).
- 7) **THIS PERMIT WILL BE REVOKED** if any pollutant is released into or allowed to remain in any component of the City drainage system.
- 8) Trench backfill and pavement repairs shall be per City of Torrance Standard T116.
- 9) Any public irrigation system components damaged by this construction shall be replaced to the satisfaction of Community Services/Park Services Division (310-618-2930).
- 10) All survey monuments in the project area **MUST** be located and tied out and a Corner Record filed prior to the start of construction. Also, all destroyed monuments must be replaced prior to receiving final inspection.
- 11) It is the responsibility of the contractor to **REPLACE** any **PAVEMENT** removed by this construction.
- 12) The City of Torrance is held harmless from the results of any action or accidents caused by the permittee, his employees, or equipment in the performance of the work described or covered in this permit. Validation of this permit **SHALL NOT** be held to permit or to be an approval of the violation of any applicable provision of the City Code covering this work, or any other provisions of the City of Torrance Code. In the granting of a Construction & Excavation permit, the Community Development Director may impose such conditions thereon, in addition to those otherwise provided herein, as are reasonably necessary to prevent the proposed operations from being conducted in such a manner as to constitute or create a **HAZARD OR BE DETRIMENTAL TO LIFE OR PROPERTY.**
- 13) See additional conditions attached to this permit.

NOTICE
CITY OF TORRANCE
COMMUNITY DEVELOPMENT DEPARTMENT/
ENGINEERING DIVISION
NEW INSURANCE REGULATIONS

The City of Torrance Community Development Department/Engineering Division will be requiring proof of liability insurance from each contractor applying for a Construction & Excavation permit to work in the public right-of-way or in a public easement beginning October 1, 2001. Insurance shall cover contractor and vehicles used in the construction. The attached requirements dated September 20, 2001 will detail the insurance limits.

All insurance certificates shall have an additional clause that states: *"The City of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer"* as additional insured.

Contractors should bring in proof of insurance at the time of application for permit. For major companies that are self-insured, a letter stating this fact and signed by an officer of the firm will be acceptable. Annual insurance may also be kept on file for contractors working periodically within the City of Torrance.

If you have any questions, please contact the Engineering Division Permit Counter at 310-618-5898.

JEFFERY W. GIBSON
Community Development Director
City of Torrance

EFFECTIVE 8/11/03

8/11/03

CITY OF TORRANCE
COMMUNITY DEVELOPMENT DEPARTMENT/
ENGINEERING DIVISION

PERMIT APPLICATION FORM
INSURANCE REQUIREMENTS

Any entity performing work on City streets, right-of-way, and property must comply with the following requirements.

1. TYPE OF INSURANCE

Any entity performing work must maintain at their sole expense the following insurance, which shall be full coverage not subject to self-insurance provisions.

- General Liability including coverage for premises, products and completed operations, underground hazards, independent contractors, personal injury and contractual obligations with combined single limits of at least \$1,000,000 per occurrence.
- Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:
 - Primary Bodily Injury with limits of at least \$500,000 per person, \$1,000,000 per occurrence **AND**; Primary Property Damage with limits of at least \$500,000 per occurrence, **OR**
 - Combined single limits of at least \$1,000,000 per occurrence.
- Workers' Compensation with limits as required by the State of California and Employer's Liability with limits of at least \$1,000,000.

2. CERTIFICATES

- Certificates or an attached endorsement must be provided that contains the following provisions:
 - The City of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer must be named as additional insured under the automobile and general liability policies.
 - The insurance policies required by this clause shall contain a provision that no termination, cancellation or change of coverage can be made without 30 days written notice to the City.

3. FILING REQUIREMENTS

- Certificates of insurance and/or endorsements must be provided to the Community Development Department, Permits and Records Section, 3031 Torrance Blvd., Torrance, CA 90503, prior to the issuance of the permit.

4. ADDITIONAL REQUIREMENT

- Insurance required of any entity performing work will be satisfactory only if issued by companies rated "B+" or better in the most recent edition of Best's Key Rating Guide, and only if they are of a financial category of a VII or better, unless these requirements are modified or waived by the City's Risk Manager.

Please call the Business License Office at 310-618-5923 for fee amounts. Payment must be submitted with your application.

FOR OFFICIAL USE ONLY

1. LICENSE NO. _____
 2. CATEGORY NO. _____
 HOME OCCUPATION HEALTH PERMIT N.A.I.C.S. CODE _____



City of Torrance, Revenue Division

Business License Application

3031 Torrance Boulevard, Torrance, California 90503 • 310/618-5828

PART I. APPLICANT TO ANSWER ALL QUESTIONS IN THIS SECTION (print or type)

3. BUSINESS NAME OR DBA _____

4. CORPORATE NAME (IF DIFFERENT FROM ABOVE) _____

5. BUSINESS ADDRESS SUITE # _____ CITY _____ STATE _____ ZIP _____

6. MAILING ADDRESS SUITE # _____ CITY _____ STATE _____ ZIP _____

7. NATURE OF BUSINESS (state type of business being conducted at this location) _____

8. NO. OF PERSONS WORKING AT LOCATION _____

9. BUSINESS PHONE _____

10. NAME OF PERSON MAKING APPLICATION (must be an owner, partner or corporate officer) _____

11. TITLE _____

12. HOME PHONE _____

13. RESIDENCE ADDRESS CITY _____ STATE _____ ZIP _____

14. DRIVER'S LICENSE NO. _____

15. STATE SALES TAX NO. _____

16. STATE CONTRACTOR'S LICENSE NO. _____

17. SQUARE FOOTAGE _____

18. SOCIAL SECURITY NO. _____

19. FED TAX ID# _____

20. STATE TAX ID# _____

21. OWNERSHIP INFORMATION

PARTNERSHIP CORPORATION SOLE OWNERSHIP

TITLE _____ HOME ADDRESS _____ HOME PHONE _____

I declare that I am the owner, partner, corporate officer or person with the power of attorney, and I understand if all the information provided above is not the true the business license being applied for may be revoked as outlined in section 31.9.10 of the Torrance Municipal Code.

I am duly authorized to make this application. All of the information provided in this application is true and correct. The business will not provide any service, good or product which is illegal under Federal, State, or Local Laws. I declare under penalty of perjury that the foregoing is true and correct.

SIGNATURE _____ DATE _____

PART II. FOR OFFICIAL USE ONLY

BASIC FEE APPLICATION SENT FOR ZONING? YES NO PROCESSING FEE _____ FIRE INSP. FEE _____ OTHER _____

PER PERSON FEE OTHER (cont'd) _____

PENALTY FEE HOLD YES NO ENT. FEE _____ DANCE/PIANO FEE _____

RECEIVED BY _____ DATE _____ CHECK NO. _____ BANK NO. _____ CASH _____ TOTAL AMOUNT \$ _____

APPENDIX III

CITY OF TORRANCE STANDARD PLANS

STREET PLAN GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION AND SUPPLEMENTS THERETO, AS WRITTEN AND PROMULGATED BY PUBLIC WORKS STANDARDS, INC., HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS, THE TORRANCE STANDARDS, AND TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT OR PUBLIC WORKS DIRECTOR.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE, VERIFY DEPTH AND PROTECT ALL STRUCTURES, INCLUDING SUBSTRUCTURES, SHOWN ON THE PLAN. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF REPAIRING OR REPLACING ANY OF SAID STRUCTURES DAMAGED BY HIM/HER DURING PROSECUTION OF THE WORK. ALL REPAIRS AND REPLACEMENTS SHALL BE DONE IN THE PRESENCE OF THE INSPECTOR. ALL LOCATIONS SHOWN ON THE PLAN FOR UTILITY LINES HAVE BEEN TAKEN FROM AVAILABLE RECORDS AND THEIR COMPLETENESS AND CORRECTNESS ARE IN NO WAY GUARANTEED.
3. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600 AND ALL PUBLIC UTILITY COMPANIES AND OWNERS OF PRIVATE FACILITIES WITHIN THE AREA OF CONSTRUCTION AT LEAST 2 WORKING DAYS IN ADVANCE OF PERFORMING ANY WORK WITHIN SAID AREA.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY BEFORE COMMENCING WORK. TRAFFIC CONTROL WITHIN PUBLIC STREET RIGHTS OF WAY SHALL BE IN CONFORMANCE WITH THE "WATCH MANUAL" AND "MUTCD MANUAL" LATEST EDITION. THE CONTRACTOR SHALL PROVIDE A 24-HOUR TELEPHONE NUMBER FOR EMERGENCY REPAIRS TO TRAFFIC CONTROL AND PAVEMENT MARKINGS.
5. **OVERHEAD UTILITY LINE CAUTION: REVIEW APPROVED CONSTRUCTION PLAN. IF CONSTRUCTION REQUIRES WORKERS AND/OR EQUIPMENT TO BE WITHIN 6 FEET OF CRANES OR HOISTING DEVICES TO BE WITHIN 10 FEET OF OVERHEAD ELECTRIC/UTILITY LINES, CALL SOUTHERN CALIFORNIA EDISON CO. AT 310-783-9336.**
6. PRIOR TO COMMENCEMENT OF WORK, ALL SURVEY MONUMENTS IN THE PROJECT AREA SHALL BE LOCATED AND TIED OUT. ALL CENTERLINE MONUMENTS OR TIES LOST OR DESTROYED BY THIS WORK SHALL BE REPLACED EITHER BY A LICENSED SURVEYOR OR A CIVIL ENGINEER REGISTERED PRIOR TO JANUARY 1, 1982 AND NEW TIE SHEETS PROVIDED. METHOD OF ESTABLISHMENT SHALL BE STATED ON THE TIE SHEET.
7. GRADE SHEETS PREPARED AND STAMPED BY A LICENSED ENGINEER OR SURVEYOR SHALL BE DELIVERED TO THE INSPECTOR 24 HRS PRIOR TO COMMENCEMENT OF WORK.
8. THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DEPARTMENT AT 310-781-6900 PRIOR TO TRIMMING, REMOVING OR RELOCATING ANY EXISTING STREET TREES.
9. UNLESS OTHERWISE SHOWN, ALL TRAFFIC SIGNS SHALL BE RELOCATED OR REMOVED BY THE CONTRACTOR.
10. IF STREET TREES ARE REQUIRED IN THE PARKWAY, NEWLY INSTALLED TREES SHALL BE INSTALLED PER CITY OF TORRANCE STANDARD T401 AND TO THE SATISFACTION OF THE STREETScape MANAGER. CONTACT THE PUBLIC WORKS DEPARTMENT AT 310-781-6900 FOR TYPE(S), SIZE(S) AND LOCATION(S) OF TREES.
11. PLANTED AND IRRIGATED PARKWAY(S) (IF REQUIRED) SHALL HAVE MATERIALS AND PLANTS APPROVED BY THE STREETScape MANAGER PRIOR TO INSTALLATION.
12. CRUSHED AGGREGATE BASE (CAB) PER SECTION 200-2.2 OF THE STANDARD SPECIFICATIONS SHALL BE USED FOR ALL BASE MATERIAL. ACCEPTABLE SUBSTITUTION: CRUSHED MISCELLANEOUS BASE (CMB) PER SECTION 200-2.4 OF THE STANDARD SPECIFICATIONS MAY BE USED AS BASE MATERIAL UNDER SIDEWALK; CURBS, GUTTERS, CROSS GUTTERS, RESIDENTIAL DRIVEWAY APRONS AND PAVEMENT ON LOCAL STREETS; AND ALLEYS.
13. BASE FOR A RESIDENTIAL DRIVEWAY MAY BE OMITTED ON SANDY SOILS AND SHALL BE 4" THICK ON OTHER SOILS. SANDY SOILS SHALL BE DETERMINED BY A MINIMUM SE OF 30 PER SAND EQUIVALENT TEST AS PER SECTION 211-3 OF THE STANDARD SPECIFICATIONS.
14. "X" DIMENSION SHOWN ON A.P.W.A. STANDARD 110 SHALL BE 3 FEET UNLESS OTHERWISE CALLED FOR ON THE PLAN OR IN THE SPECIFICATIONS.

CITY OF TORRANCE

STREET PLAN GENERAL NOTES

DATE ISSUED

JULY 2006

ROBERT J. BESTE
PUBLIC WORKS DIRECTOR
R.C.E. NO. 50737



STANDARD NO.

T100

SHEET 1 OF 2

TT\1100(7/12/2006)

STREET PLAN GENERAL NOTES (CON'T)

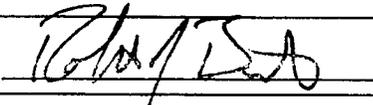
15. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON THE SAME LOT SHALL BE 20 FEET.

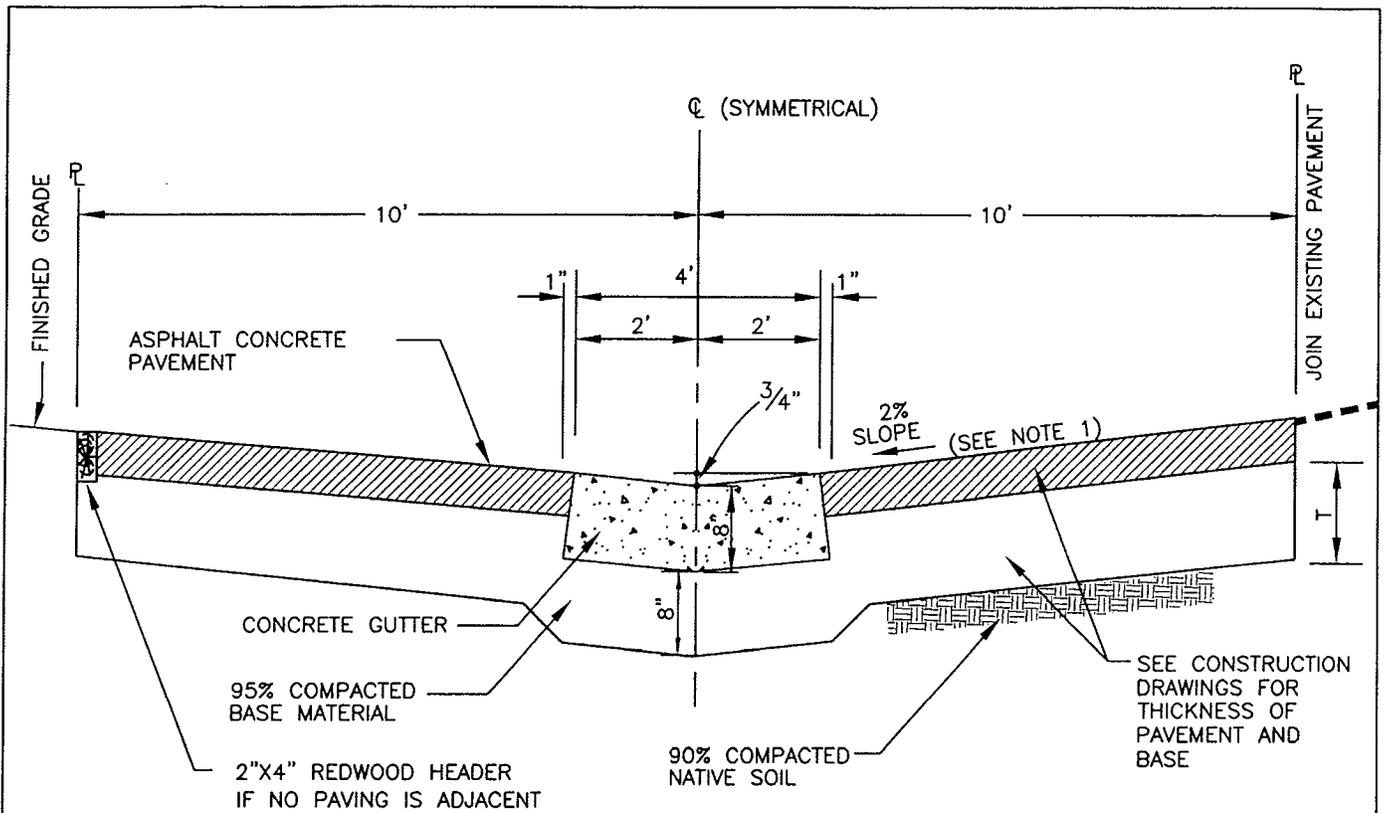
16. FOR A NEW ASPHALT CONCRETE (AC) SECTION 4" THICK OR LESS, THE CONTRACTOR SHALL CONSTRUCT ONE LIFT OF C2-AR4000 (C2-PG-64-10) OVER BASE. FOR A NEW AC SECTION 5" THICK, THE CONTRACTOR SHALL CONSTRUCT ONE 2" THICK LIFT OF C2-AR4000 (C2-PG-64-10) OVER ONE 3" THICK LIFT OF B-AR4000 (B-PG- 64-10) OVER BASE. FOR A NEW AC SECTION THICKER THAN 5" AND PAVEMENT OVERLAYS REFER TO CONSTRUCTION NOTES AND/OR PLANS. THE MAXIMUM THICKNESS OF EACH LIFT SHALL BE 4". INSTALLATION OF THE FINAL COURSE SHALL NOT TAKE PLACE UNTIL ALL UNDERGROUND UTILITY TRENCHING HAS BEEN COMPLETED AND APPROVAL TO PROCEED HAS BEEN GRANTED BY THE PUBLIC WORKS INSPECTOR OR ENGINEER.

17. DURING NON-CONSTRUCTION HOURS, ALL EXCAVATIONS MUST BE APPROPRIATELY SHORED AND PLATED OR BACKFILLED, EXCEPT BORE PITS WHICH SHALL BE SECURED WITH K-RAIL AND 6' HIGH CHAIN LINK FENCE PANELS SECURED IN PLACE TO THE SATISFACTION OF THE PUBLIC WORKS INSPECTOR OR ENGINEER. PLATES SHALL BE TACK WELDED, PINNED AND/OR SECURED IN PLACE BY ANOTHER METHOD APPROVED BY THE INSPECTOR OR ENGINEER.

18. THE CONTRACTOR SHALL MAKE AVAILABLE FOR THE INSPECTOR'S REVIEW, ON A DAILY BASIS, AS-BUILT DRAWINGS FOR WORK PERFORMED UP TO AND INCLUDING THE PREVIOUS DAY'S ACTIVITIES. WORK SHALL NOT BE CONSIDERED AS COMPLETE UNTIL AS-BUILT DRAWINGS ARE SUBMITTED TO AND ACCEPTED BY THE COMMUNITY DEVELOPMENT OR PUBLIC WORKS DIRECTOR.

CITY OF TORRANCE

DATE ISSUED	STREET PLAN GENERAL NOTES	STANDARD NO.
JULY 2006	ROBERT J. BESTE PUBLIC WORKS DIRECTOR R.C.E. NO. 50737 	T100
		SHEET 2 OF 2



TYPICAL SECTION

NOT TO SCALE

NOTES:

1. IF APPROVED BY THE COMMUNITY DEVELOPMENT DIRECTOR OR PUBLIC WORKS DIRECTOR SLOPE MAY VARY FROM 1% MIN. TO 5% MAX. TO MATCH EXISTING CONDITIONS AND TO FACILITATE JOINS. IF MIN. AND MAX. SLOPES CAN NOT BE MET, OFFSET THE FLOW LINE FROM CENTERLINE.
2. SMOOTH TROWEL 8" WIDE FLOWLINE IN CONCRETE GUTTER.
3. EXPANSION JOINTS IN GUTTER SHALL BE INSTALLED AT 40'-50' INTERVALS WITH FOUR NO.4 SMOOTH DOWELS (18" LONG).
4. WEAKENED PLANE JOINTS IN GUTTER SHALL BE INSTALLED AT 20'-25' INTERVALS.
5. T: THICKNESS OF CRUSHED AGGREGATE BASE (CAB) OR CRUSHED MISCELLANEOUS BASE (CMB).

CITY OF TORRANCE

TYPICAL SECTION ALLEY

STANDARD NO.

T101

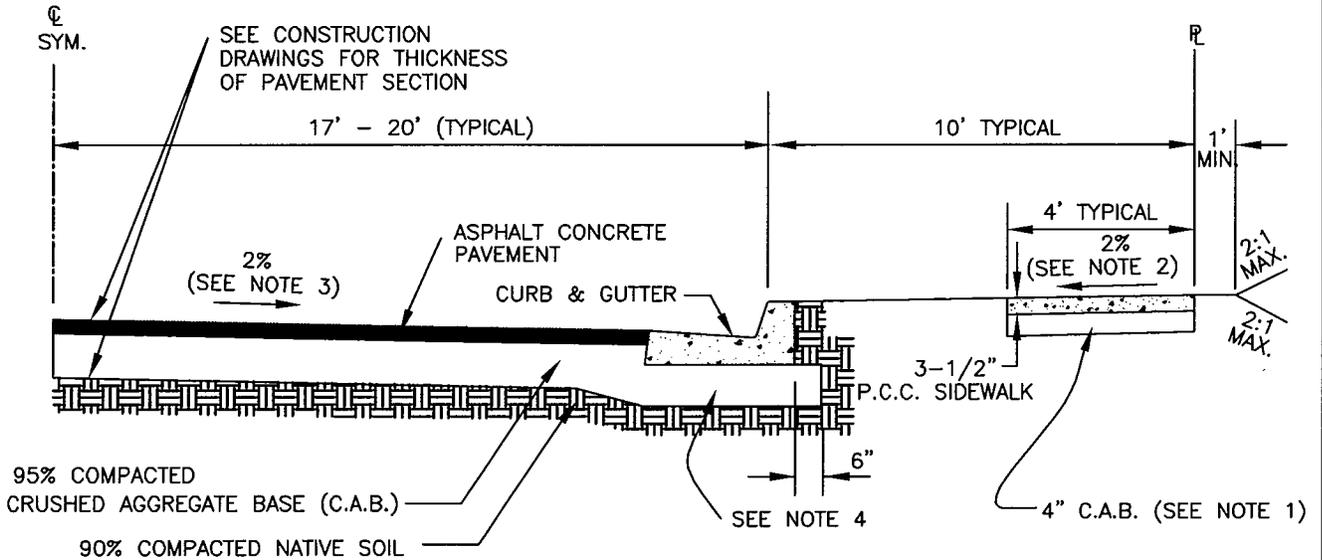
SHEET 1 OF 1

ROBERT J. BESTE
PUBLIC WORKS DIRECTOR
R.C.E. NO. 50737

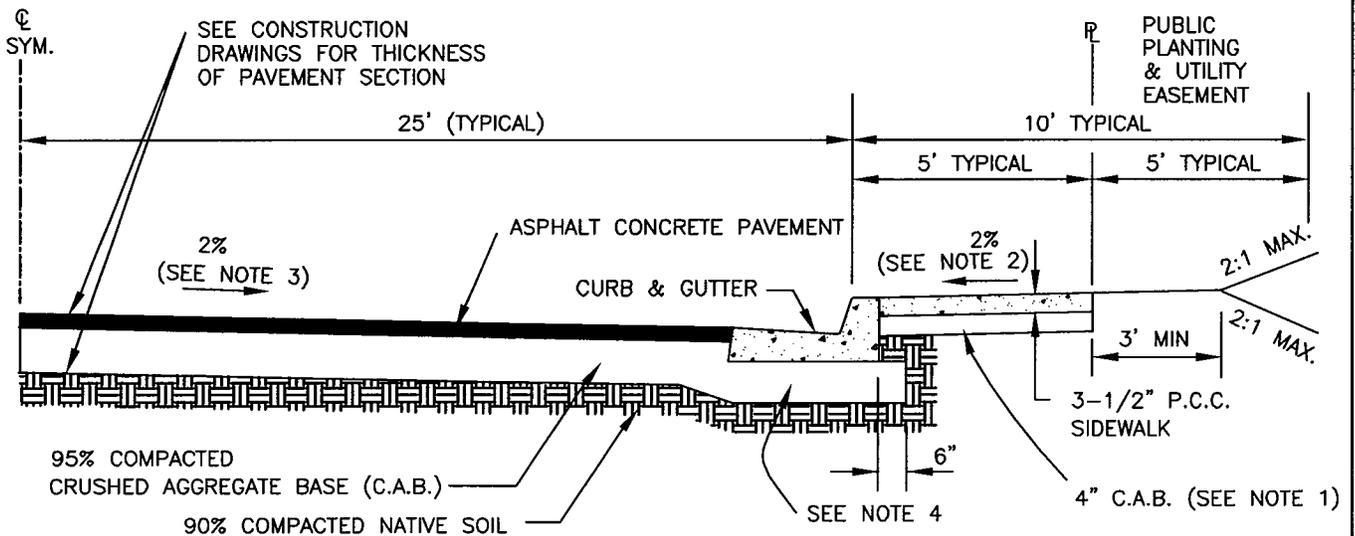
TT/T101

DATE ISSUED

SEPT 2006



RESIDENTIAL STREET



INDUSTRIAL STREET

NOTES:

1. THE BASE MAY BE OMITTED UNDER SIDEWALK IF SUBGRADE IS SANDY SOIL.
2. TYPICAL - MAY VARY 0.5% MIN. TO 2.0% MAX TO MATCH EXISTING CONDITIONS AND TO FACILITATE JOINS.
3. TYPICAL - MAY VARY 1% MIN. TO 4.0% MAX TO MATCH EXISTING CONDITIONS AND TO FACILITATE JOINS.
4. THICKNESS OF BASE REQUIRED UNDER CURB & GUTTER SHALL BE 8" ON CLAYEY SOILS AND 6" ON SANDY SOILS.

CITY OF TORRANCE - ENGINEERING DEPARTMENT

DATE ISSUED
16 NOV 1998

**TYPICAL SECTION
LOCAL STREET**

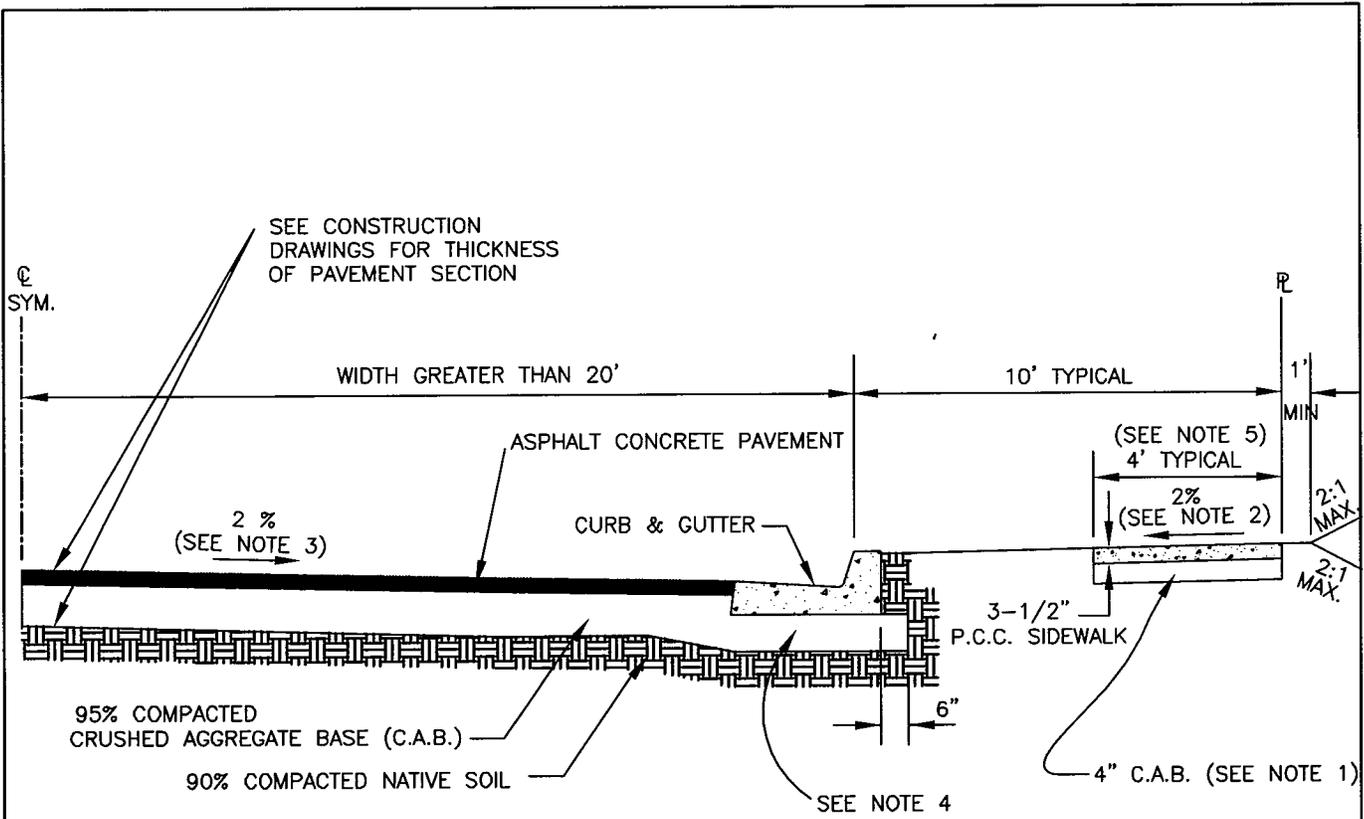
STANDARD NO.

T102-2

RICHARD W. BURTT
ENGINEERING DIRECTOR
R.C.E. NO. 32862

SHEET 1 OF 1

DV/TT/T102-2



COLLECTOR

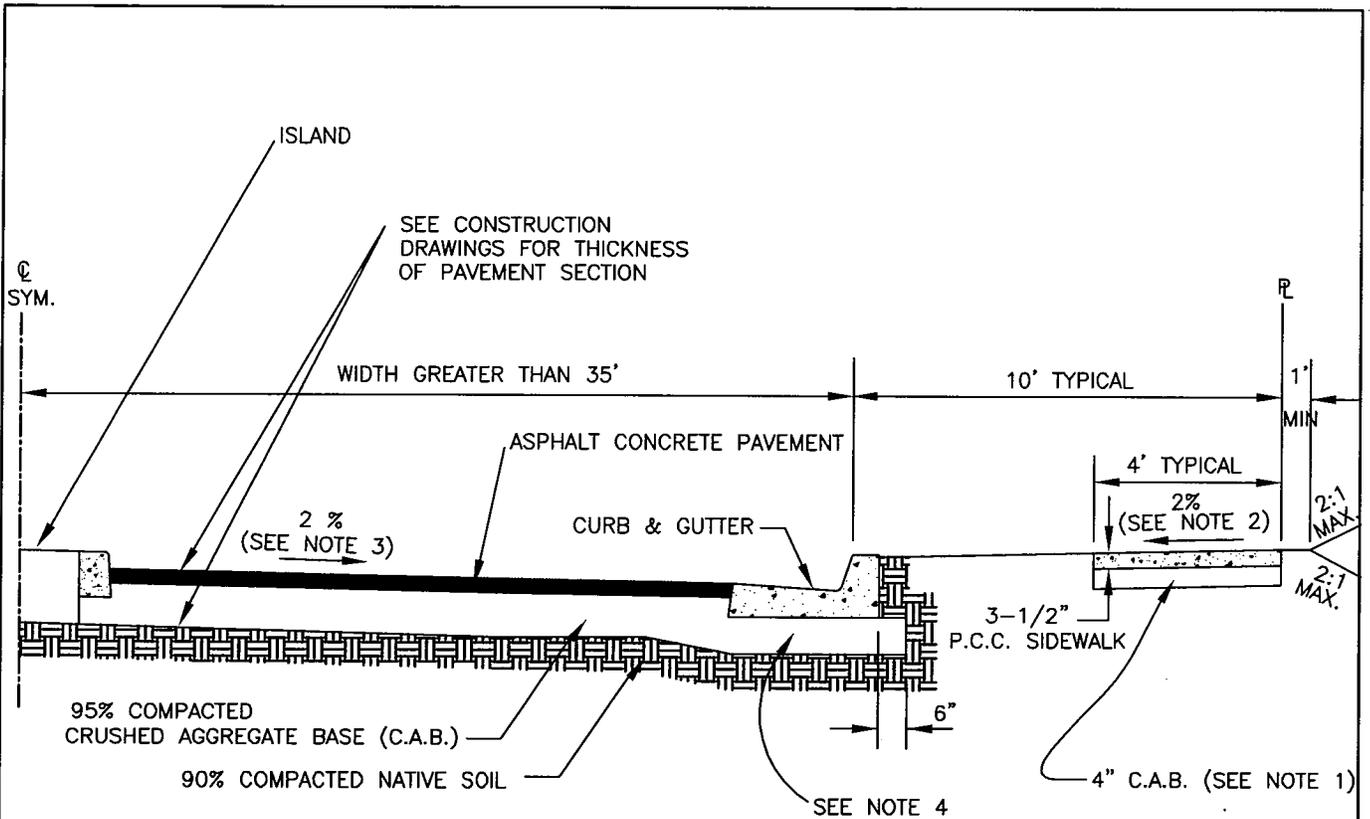
NOTES:

1. THE BASE MAY BE OMITTED UNDER SIDEWALK IF SUBGRADE IS SANDY SOIL.
2. TYPICAL - MAY VARY 0.5% MIN. TO 2% MAX TO MATCH EXISTING CONDITIONS AND TO FACILITATE JOINS.
3. TYPICAL - MAY VARY 1% MIN. TO 4.0% MAX TO MATCH EXISTING CONDITIONS AND TO FACILITATE JOINS.
4. THICKNESS OF BASE REQUIRED UNDER CURB & GUTTER SHALL BE 8" ON CLAYEY SOILS AND 6" ON SANDY SOIL.
5. IF SIDEWALK IS ADJACENT TO CURB, SIDEWALK WIDTH SHALL BE 5' MINIMUM AND HAVE 4' CLEAR AROUND ANY OBSTRUCTION. ALSO SEE T108 AND T109.

CITY OF TORRANCE - ENGINEERING DEPARTMENT

DATE ISSUED 16 NOV 1998	TYPICAL SECTION COLLECTOR AND ARTERIAL STREET	STANDARD NO. T103-2
	RICHARD W. BURTT ENGINEERING DIRECTOR R.C.E. NO. 32862 	SHEET 1 OF 2

TT/T103-21



MINOR AND MAJOR ARTERIAL

NOTES:

1. THE BASE MAY BE OMITTED UNDER SIDEWALK IF SUBGRADE IS SANDY SOIL.
2. TYPICAL - MAY VARY 0.5% MIN. TO 2% MAX TO MATCH EXISTING CONDITIONS AND TO FACILITATE JOINS.
3. TYPICAL - MAY VARY 1% MIN. TO 4.0% MAX TO MATCH EXISTING CONDITIONS AND TO FACILITATE JOINS.
4. THICKNESS OF BASE REQUIRED UNDER CURB & GUTTER SHALL BE 8" ON CLAYEY SOILS AND 6" ON SANDY SOIL.

CITY OF TORRANCE - ENGINEERING DEPARTMENT

DATE ISSUED

16 NOV 1998

TYPICAL SECTION COLLECTOR AND ARTERIAL STREET

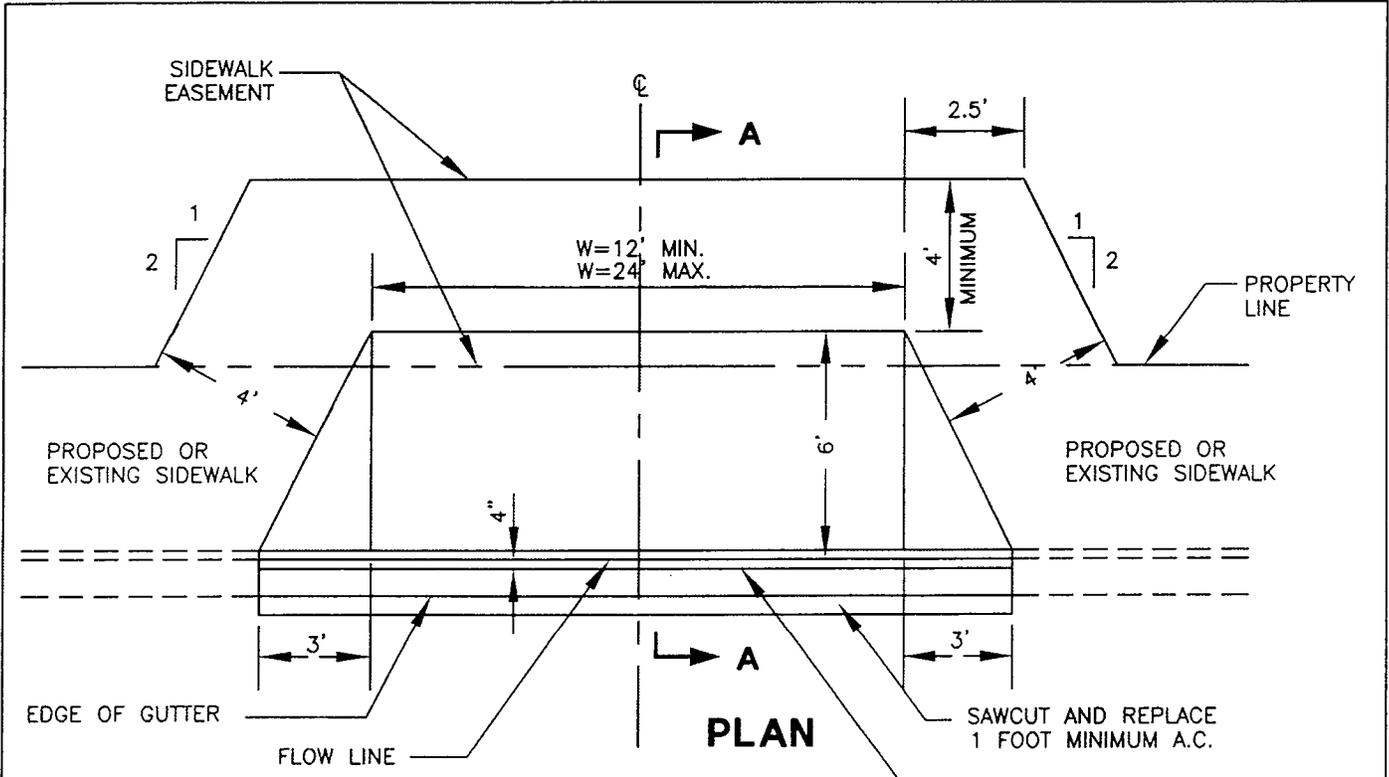
RICHARD W. BURTT
ENGINEERING DIRECTOR
R.C.E. NO. 32862

STANDARD NO.

T103-2

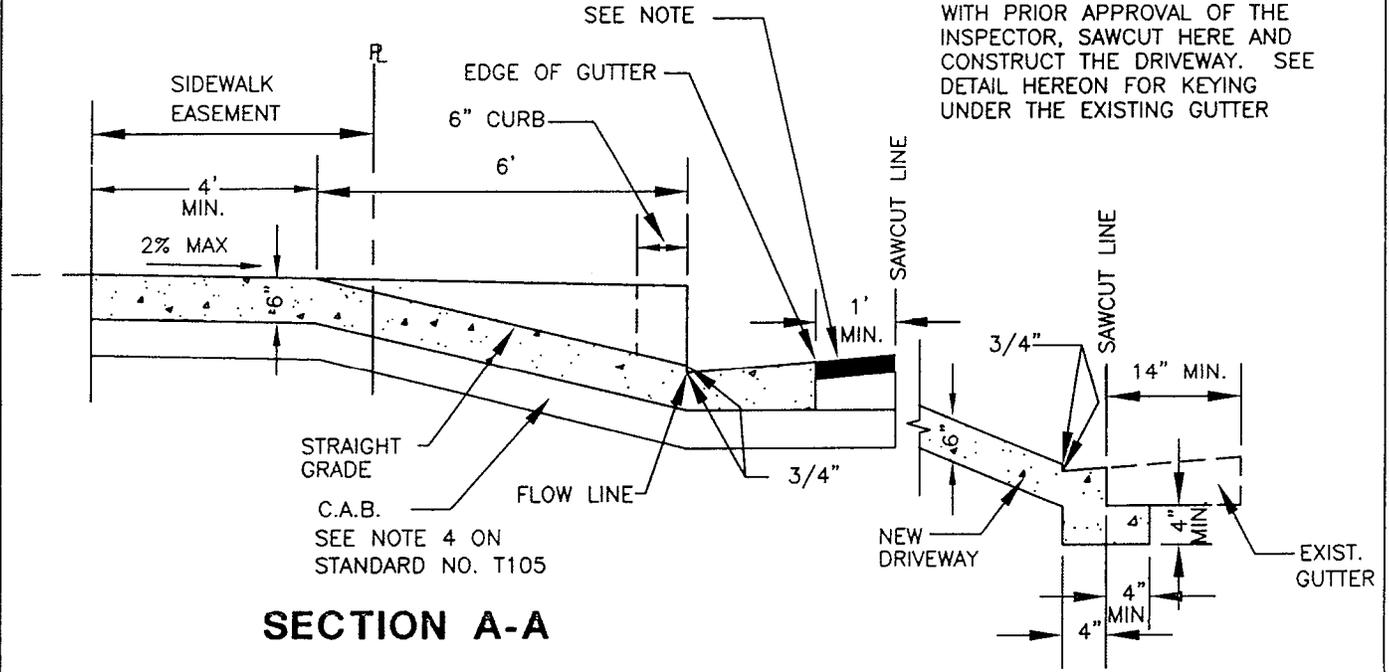
SHEET 2 OF 2

TT/T103-22



PLAN

ALTERNATIVE:
 WITH PRIOR APPROVAL OF THE INSPECTOR, SAWCUT HERE AND CONSTRUCT THE DRIVEWAY. SEE DETAIL HEREON FOR KEYING UNDER THE EXISTING GUTTER



SECTION A-A

DETAIL

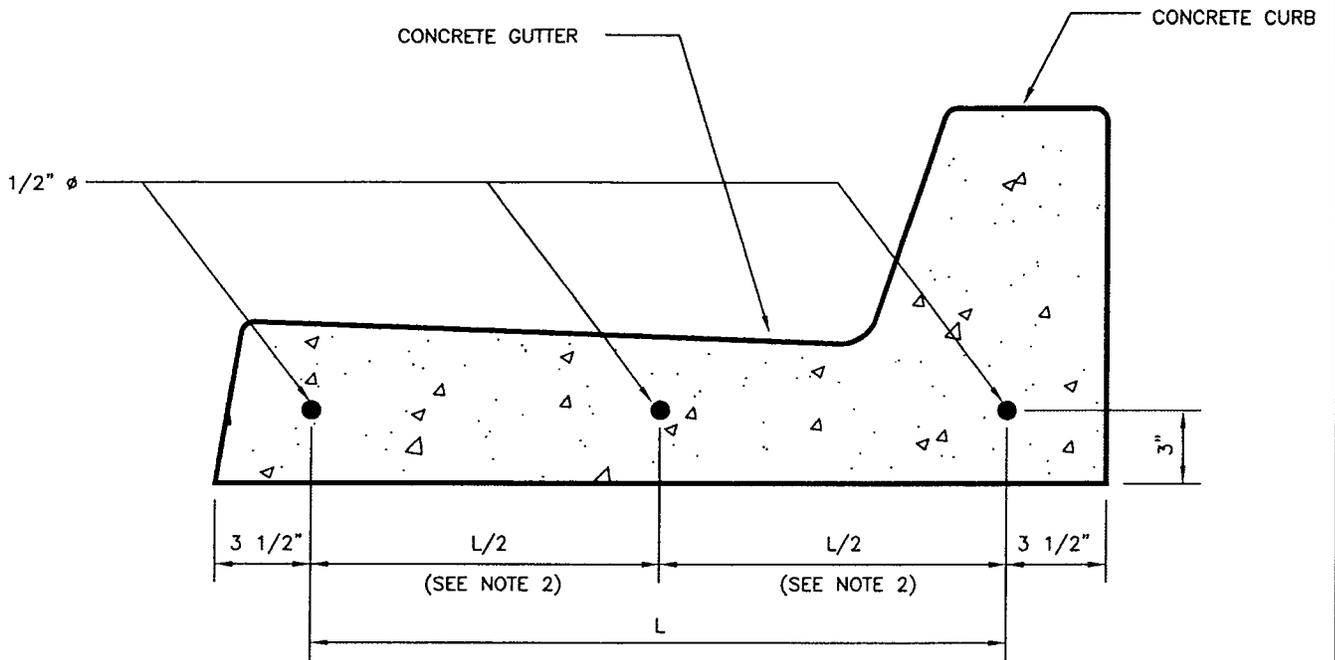
NOTE:

WHERE APPLICABLE, THE CONTRACTOR SHALL RECONSTRUCT THIS ONE (1) FOOT WIDE SECTION WITH A 2-INCH THICK SECTION OF AC PAVEMENT (C2-PG-64-10) ON A 4-INCH THICK SECTION OF 2-SACK CEMENT AND SAND SLURRY MIX ON AN 8-INCH THICK SECTION OF UNTREATED BASE

CITY OF TORRANCE

DATE ISSUED FEB 15, 2007	DRIVEWAY IN NARROW PARKWAY		STANDARD NO.
	ROBERT J. BESTE PUBLIC WORKS DIRECTOR R.C.E. NO. 50737		T108
			SHEET 1 OF 1

TT/T108



DOWELS FOR STANDARD 8" CURB & 24" GUTTER

NOTES:

1. USE 3 SMOOTH DOWELS (1/2"Ø), 24" LONG WITH ONE END BONDED 12".
2. IF L IS EQUAL OR LESS THAN 12" OMIT CENTER DOWEL AT L/2.
3. SEE APWA STANDARDS 112 & 120 FOR EXPANSION JOINT LOCATIONS AND OTHER CURB AND GUTTER DETAILS.

CITY OF TORRANCE

DATE ISSUED

FEB 15, 2007

DOWELS AT EXPANSION JOINTS

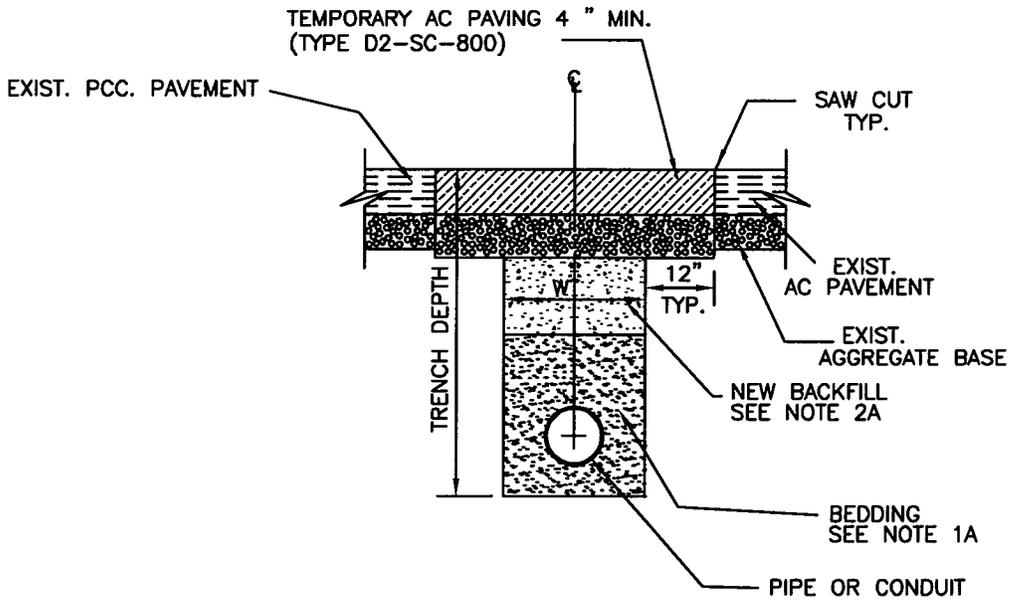
ROBERT J. BESTE
PUBLIC WORKS DIRECTOR
R.C.E. NO. 50737

STANDARD NO.

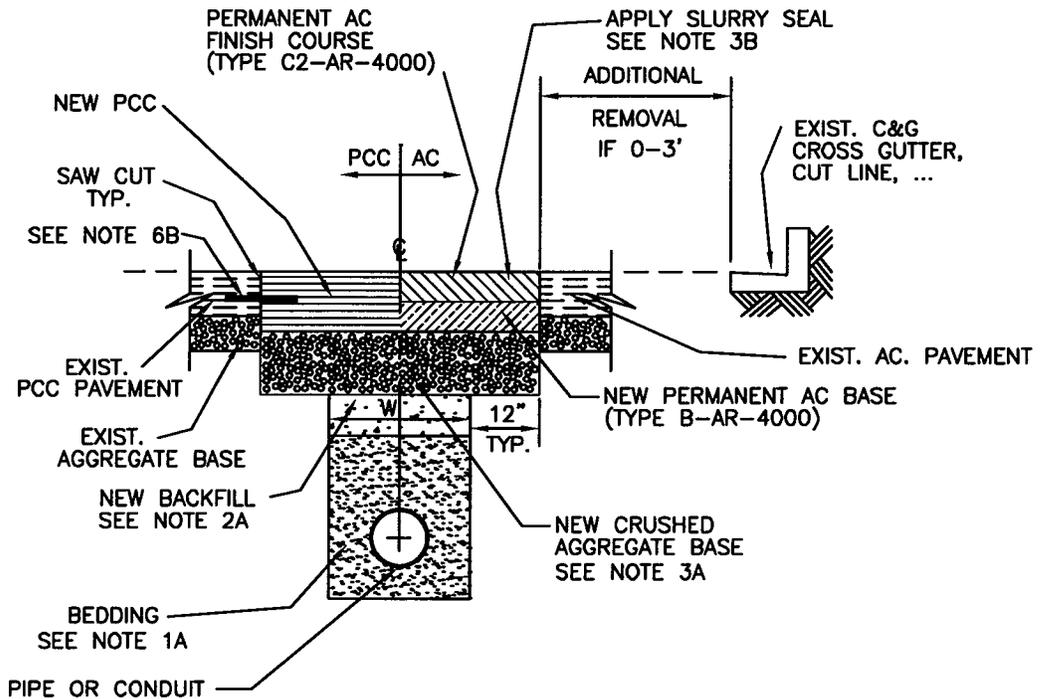
T115

SHEET 1 OF 1

T115



TEMPORARY ASPHALT REPAIR



PERMANENT TRENCH REPAIR

TYPICAL TRENCH SECTION WITHIN ROADWAY
(SEE NOTE 8C FOR EXCEPTION)

CITY OF TORRANCE - ENGINEERING DEPARTMENT

TT\T116-2

DATE ISSUED
10 SEP 2002

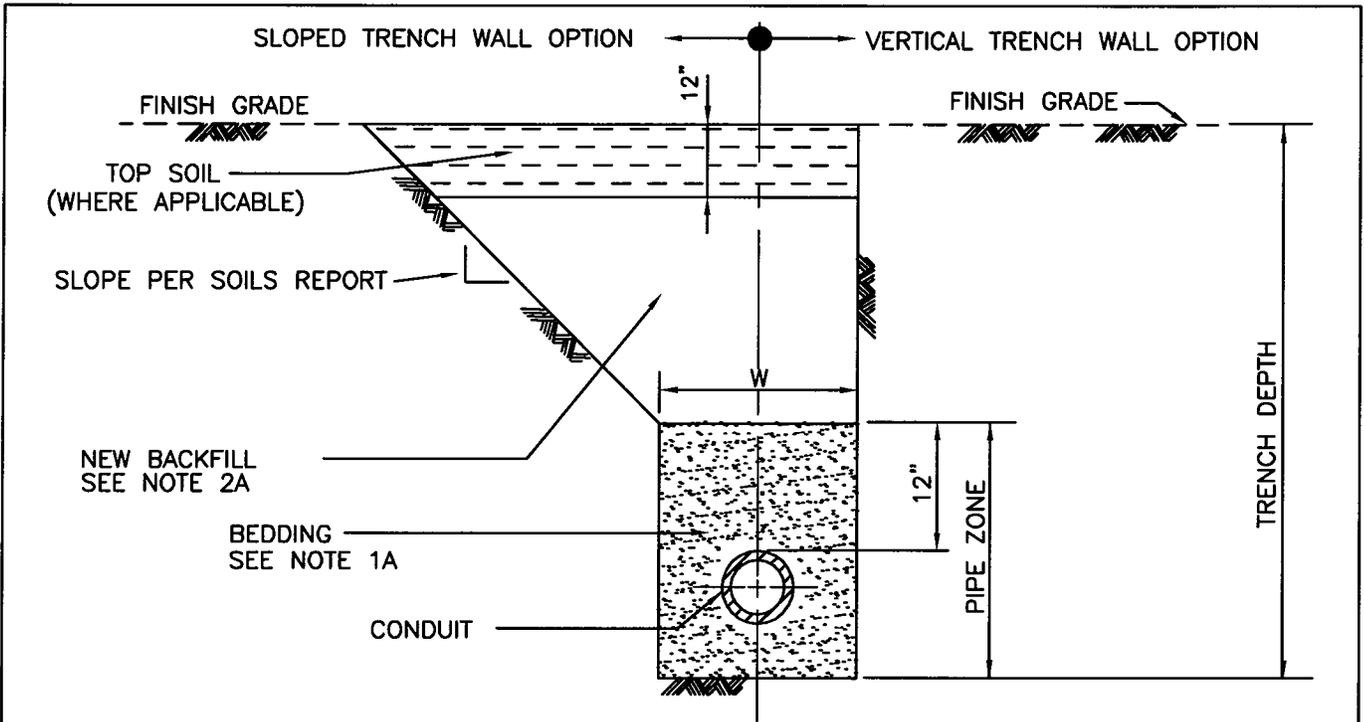
TRENCH BACKFILL & PAVEMENT REPAIRS

RICHARD W. BURTT
ENGINEERING DIRECTOR
R.C.E. NO. 32862
R.T.E. NO. 1538

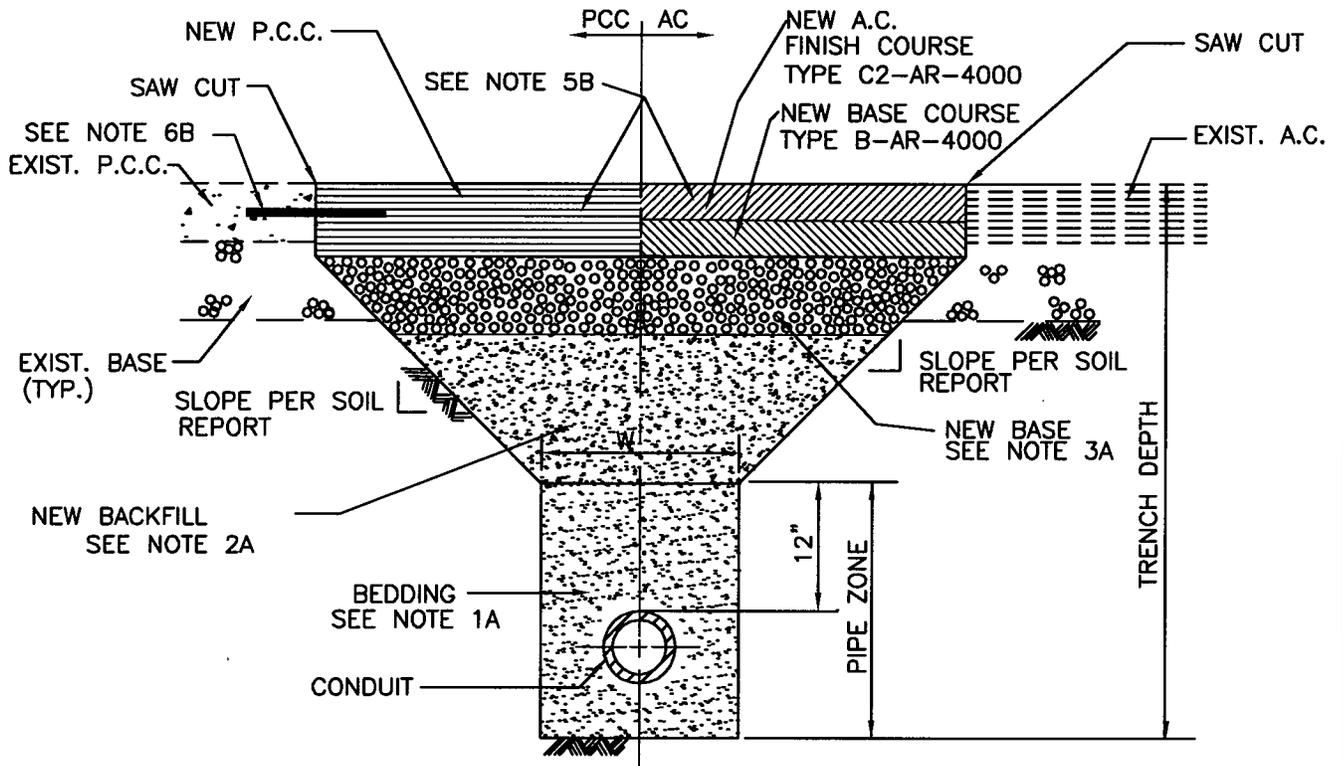
STANDARD NO.

T116-2

SHEET 1 OF 4



TYPICAL TRENCH SECTION OUTSIDE ROADWAY



**TYPICAL TRENCH SECTION WITHIN ROADWAY
SLOPED TRENCH WALL OPTION**

CITY OF TORRANCE - ENGINEERING DEPARTMENT

TT116-2

DATE ISSUED	TRENCH BACKFILL & PAVEMENT REPAIRS	STANDARD NO.
10 SEP 2002		T116-2
RICHARD W. BURTT ENGINEERING DIRECTOR R.C.E. NO. 32862 R.T.E. NO. 1538		SHEET 2 OF 4

NOTES:

BELOW GROUND:

1A. SEE STD. PLAN NO'S T204, T302, AND T701 FOR BEDDING REQUIREMENTS.

2A. FOR TRENCHES WITH "W" GREATER THAN 2' OR IF TRENCH WALLS ARE SLOPED, BACKFILL SHALL BE CRUSHED AGGREGATE BASE, OR NATIVE OR OTHER EXCAVATION MATERIAL WITH AN SE VALUE OF 30 OR GREATER. BACKFILL MATERIAL SHALL BE DENSIFIED TO A RELATIVE COMPACTION OF 95% IN THE UPPER 3 FEET AND TO 90% BELOW THE UPPER 3 FEET. FOR TRENCHES LONGER THAN 200' OR LARGER THAN 1,000 SQUARE FEET A LICENSED SOILS ENGINEER SHALL BE PRESENT TO MONITOR THE NATIVE OR IMPORTED BACKFILL OPERATION AND TEST FOR COMPACTION AT 100' OR 200 SQUARE FOOT MAXIMUM INTERVALS

FOR TRENCHES WITH "W" LESS THAN OR EQUAL TO 2' IN THE ROADWAY, A SAND-CEMENT SLURRY (100-E-100) BACKFILL SHALL BE USED. SLURRY SHALL CURE 16 HOURS MINIMUM PRIOR TO BASE PLACEMENT. RAPID SET CEMENT SLURRY SHALL CURE 1 HOUR MINIMUM PRIOR TO BASE PLACEMENT.

IN AREAS NOT IN EXISTING ROADWAY, BACKFILL SHALL BE COMPACTED TO A RELATIVE COMPACTION OF 90%.

3A. NEW CRUSHED AGGREGATE BASE SHALL BE 2" THICKER THAN EXISTING BASE, BUT NOT LESS THAN 8" THICK.

4A. EXCAVATED MATERIAL NOT APPROVED FOR USE IN TRENCH BACKFILL SHALL BE REMOVED FROM JOB SITE UNLESS OTHERWISE USED IN THE WORK.

5A. WHERE WET, UNSTABLE OR RUNNING SOIL IS ENCOUNTERED, SOLID SHEATHING IS REQUIRED FOR ALL VERTICAL TRENCH WALLS.

6A. ANY SHORING REQUIRED SHALL BE DESIGNED BY A REGISTERED CIVIL OR STRUCTURAL ENGINEER.

7A. "W" SHALL BE MEASURED AT TOP OF BEDDING.

VISIBLE SURFACE:

1B. IF REMAINING AC PAVEMENT BETWEEN EDGE OF TRENCH AND EXISTING GUTTER, CURB, CROSS GUTTER, OR CUT LINE IS LESS THAN 3 FEET IN WIDTH, THEN THIS AC SHALL BE REMOVED AND REPLACED WITH NEW AC PAVEMENT.

2B. THE ENGINEER MAY REQUIRE WIDER REMOVAL AREA THAN THAT SHOWN ABOVE TO SUIT FIELD CONDITIONS.

3B. CRACKS SHALL BE SEALED AND A TYPE 2 SLURRY SEAL COATING WITH 2% LATEX SHALL BE APPLIED FROM LANE LINE TO LANE LINE FOR LONGITUDINAL TRENCHES GREATER THAN 200' IN LENGTH FOR ANY LANE AFFECTED.

4B. THE THICKNESS OF REPLACEMENT ASPHALT SHALL BE A MINIMUM OF 1" GREATER THAN EXISTING AC (2" GREATER IF EXISTING STREET IS PAVED WITH RUBBERIZED AC) BUT NOT LESS THAN 4" (5" FOR RUBBERIZED AC). IF EXISTING PAVEMENT IS PCC, REPLACEMENT CONCRETE SHALL BE AS PER SECTION 201.1 OF THE STANDARD SPECS AND 1" THICKER THAN EXISTING.

CITY OF TORRANCE - ENGINEERING DEPARTMENT

DATE ISSUED
10 SEP 2002

TRENCH BACKFILL & PAVEMENT REPAIRS

STANDARD NO.

T116-2

RICHARD W. BURTT
ENGINEERING DIRECTOR
R.C.E. NO. 32862
R.T.E. NO. 1538



SHEET 3 OF 4

TT\T116-2

5B. THE NEW FINISH COURSE SHALL BE PLACED FLUSH WITH THE EXISTING ADJACENT PAVING SURFACE – MAXIMUM VARIANCE FROM FLUSH IS 1/8". NEW AC PAVEMENT ADJACENT TO EXISTING EDGE OF PCC GUTTER SHALL BE 3/8" HIGHER THAN EDGE OF GUTTER.

6B. FOR PCC ROADWAY PAVEMENT, DOWEL AT 24" O.C., #4 DEFORMED BAR, 6" EMBEDMENT, AND CENTERED IN EXISTING SLAB WITH 1-1/2" MINIMUM CONCRETE COVER. DOWEL SHALL BE EPOXIED IN EXISTING SLAB AND CAST IN NEW SLAB.

METHODOLOGY:

1C. AT THE END OF EACH WORK DAY, ANY TRENCH IN AN ARTERIAL OR IN ROLLING HILLS ROAD, MAPLE/235TH ST. OR ARLINGTON AVE. SHALL BE COVERED BY NON-SKID STEEL PLATES OR BE PAVED WITH TEMPORARY OR PERMANENT PAVEMENT FLUSH WITH ADJACENT PAVEMENT SURFACES. WHEN NON-SKID STEEL PLATES ARE USED, THEY SHALL BE WELDED, SECURED IN PLACE, RAMPED WITH AC, AND NOT USED FOR MORE THAN 48 CONSECUTIVE HOURS ON THE SAME SEGMENT OF TRENCH. "PLATE AHEAD" SIGN SHALL BE PROPERLY INSTALLED WHEN PLATES ARE IN USE. OTHER CITY STREETS MAY HAVE LESSER REQUIREMENTS AND WILL BE CONSIDERED ON A CASE BY CASE BASIS.

2C. ALL TRAFFIC LANES SHALL BE CLEANED AND RESTORED FOR USE IMMEDIATELY UPON PLACEMENT OF TEMPORARY AC PAVEMENT, TRENCH PLATES AND/OR FINAL AC PAVEMENT.

3C. ALL TRAFFIC STRIPING AND/OR MARKINGS REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AS DIRECTED BY THE ENGINEER.

4C. TRAFFIC CONTROL SHALL BE PER CITY OF TORRANCE "CONSTRUCTION TRAFFIC CONTROL PROCEDURES ON CITY STREETS" AVAILABLE FROM THE ENGINEERING DEPARTMENT PERMIT COUNTER.

5C. MORITORIUM FOR CUTTING NEW OR RECONSTRUCTED STREETS IS 5 YEARS WITHOUT SPECIAL APPROVAL FROM THE ENGINEERING DIRECTOR. NEW UTILITY SERVICE CONNECTIONS AND SERVICE LINE REPAIRS ARE EXCEPTED IF NOT ABLE TO BE FORSEEN AT THE TIME THE ROADWAY WAS RECONSTRUCTED. APPROVED LONGITUDINAL EXCAVATIONS IN NEW STREETS SHALL REQUIRE THE FULL LANE TO BE GROUND AND OVERLAID.

6C. SLURRY SEALING OF TRENCH AREA MAY BE OMITTED IF PROJECT IS COORDINATED WITHIN ONE YEAR OF A CITY STREET REHABILITATION OR SLURRY SEAL PROJECT.

7C. A COLLECTION DEVICE SHALL BE USED TO COLLECT SEDIMENTS GENERATED DURING SAWCUTTING OPERATION.

8C. TRENCHES WITH "W" LESS THAN 8" WIDE AND LESS THAN OR EQUAL TO 24" DEEP ARE NOT REQUIRED TO USE T-SECTION PAVEMENT CONSTRUCTION, OR APPLY SLURRY SEAL.

9C. ALL PAVEMENT REMOVALS SHALL USE STRAIGHT LINE SAW CUTS A MINIMUM OF 1.5" DEEP.

10C. BORING SHALL BE CONSIDERED AS A CONTINUOUS TRENCH AS FAR AS EXCAVATION REPAIR. POTHOLES LOCATED INTERMITTENTLY WILL NOT BE TREATED AS SEPARATE EXCAVATIONS BUT AS A CONTINUOUS EXCAVATION. THE CITY SHALL RESERVE THE RIGHT TO REQUIRE BORING OR OPEN TRENCH AS THE SITUATION MAY ARISE.

CITY OF TORRANCE - ENGINEERING DEPARTMENT

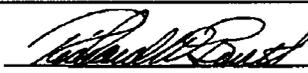
DATE ISSUED
27 SEP 2002

TRENCH BACKFILL & PAVEMENT REPAIRS

STANDARD NO.

T116-2

RICHARD W. BURTT
ENGINEERING DIRECTOR
R.C.E. NO. 32862
R.T.E. NO. 1538



SHEET 4 OF 4

TT\116-2

SANITARY SEWER GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION AND SUPPLEMENTS THERETO, AS WRITTEN AND PROMULGATED BY PUBLIC WORKS STANDARDS, INC., HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS, THE TORRANCE STANDARDS, AND TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT OR PUBLIC WORKS DIRECTOR.

2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE, VERIFY DEPTH AND PROTECT ALL STRUCTURES, INCLUDING SUBSTRUCTURES, SHOWN ON THE PLAN. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF REPAIRING OR REPLACING ANY OF SAID STRUCTURES DAMAGED BY HIM/HER DURING PROSECUTION OF THE WORK. ALL REPAIRS AND REPLACEMENTS SHALL BE DONE IN THE PRESENCE OF THE INSPECTOR. ALL LOCATIONS SHOWN ON THE PLAN FOR UTILITY LINES HAVE BEEN TAKEN FROM AVAILABLE RECORDS AND THEIR COMPLETENESS AND CORRECTNESS ARE IN NO WAY GUARANTEED.

3. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600 AND ALL PUBLIC UTILITY COMPANIES AND OWNERS OF PRIVATE FACILITIES WITHIN THE AREA OF CONSTRUCTION AT LEAST 2 WORKING DAYS IN ADVANCE OF PERFORMING ANY WORK WITHIN SAID AREA.

4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY BEFORE COMMENCING WORK. TRAFFIC CONTROL WITHIN PUBLIC STREET RIGHTS OF WAY SHALL BE IN CONFORMANCE WITH THE "WATCH MANUAL" AND "CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD CALIFORNIA SUPPLEMENT MANUAL)" LATEST EDITION. THE CONTRACTOR SHALL PROVIDE A 24-HOUR TELEPHONE NUMBER FOR EMERGENCY REPAIRS TO TRAFFIC CONTROL AND PAVEMENT MARKINGS.

5. OVERHEAD UTILITY LINE CAUTION: REVIEW APPROVED CONSTRUCTION PLAN. IF CONSTRUCTION REQUIRES WORKERS AND/OR EQUIPMENT TO BE WITHIN 6 FEET OF CRANES OR HOISTING DEVICES TO BE WITHIN 10 FEET OF OVERHEAD ELECTRIC/UTILITY LINES, CALL SOUTHERN CALIFORNIA EDISON CO. AT 310-783-9336.

6. PRIOR TO COMMENCEMENT OF WORK, ALL SURVEY MONUMENTS IN THE PROJECT AREA SHALL BE LOCATED AND TIED OUT. ALL CENTERLINE MONUMENTS OR TIES LOST OR DESTROYED BY THIS WORK SHALL BE REPLACED EITHER BY A LICENSED SURVEYOR OR A CIVIL ENGINEER REGISTERED PRIOR TO JANUARY 1, 1982 AND NEW TIE SHEETS PROVIDED. METHOD OF ESTABLISHMENT SHALL BE STATED ON THE TIE SHEET.

7. GRADE SHEETS PREPARED AND STAMPED BY A LICENSED ENGINEER OR SURVEYOR SHALL BE DELIVERED TO THE INSPECTOR 24 HRS PRIOR TO COMMENCEMENT OF WORK.

8. THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DEPARTMENT AT 310-781-6900 PRIOR TO TRIMMING, REMOVING OR RELOCATING ANY EXISTING STREET TREES.

9. UNLESS OTHERWISE SHOWN, ALL TRAFFIC SIGNS SHALL BE RELOCATED OR REMOVED BY THE CONTRACTOR.

10. BEFORE BREAKING INTO OR CONSTRUCTION ON A COUNTY SANITATION DISTRICT SEWER AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, COUNTY SANITATION DISTRICT INSPECTOR SHALL BE NOTIFIED BY PHONE AT 310-638-1161 IN ORDER THAT REQUIRED INSPECTION MAY BE MADE.

11. EXISTING DOWNSTREAM MANHOLES SHALL BE BULKHEADED WITH BRICK AND MORTAR OR PLUGS APPROVED BY THE INSPECTOR AT NEW INLET DURING CONSTRUCTION OF NEW UPSTREAM LINES. BRICK AND MORTAR OR PLUG SHALL BE REMOVED IN THE PRESENCE OF THE INSPECTOR(S) DURING CLEANING OF THE FIRST UPSTREAM SECTION OF THE NEW SYSTEM.

12. NO CONNECTION FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS UNTIL A PERMIT FOR INDUSTRIAL WASTE WATER DISCHARGE HAS BEEN ISSUED BY THE COUNTY SANITATION DISTRICTS FOR SAID CONNECTION.

13. TRENCHES CUT INTO AN EXISTING ROADWAY WITHIN THE PUBLIC RIGHT OF WAY SHALL BE BACKFILLED AND PAVED AS PER TORRANCE STANDARD T116.

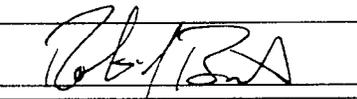
CITY OF TORRANCE

DATE ISSUED

19 FEB 2008

SANITARY SEWER GENERAL NOTES

ROBERT J. BESTE
PUBLIC WORKS DIRECTOR
R.C.E. NO. 50737



STANDARD NO.

T200

SHEET 1 OF 2

TT\T200

SANITARY SEWER GENERAL NOTES (CON'T)

14. TRENCH RESURFACING SHALL BE OF THE SAME TYPE AS THE EXISTING PAVEMENT, EXCEPT IF EXISTING PAVEMENT IS A.C. OVER P.C.C., RESURFACING MAY BE FULL-DEPTH A.C.

15. MANHOLE COVER SHALL BE CAST WITH THE WORDS "TORRANCE SEWER" FOR CITY MAINTAINED LINES AND "PRIVATE SEWER" FOR PRIVATELY MAINTAINED LINES.

16. ALL SEWER LINES CONSTRUCTED TO PUBLIC STANDARDS SHALL BE VITRIFIED CLAY PIPE (VCP). DUCTILE IRON PIPE MAY BE USED SUBJECT TO PRIOR WRITTEN APPROVAL FROM THE COMMUNITY DEVELOPMENT/PUBLIC WORKS DIRECTOR. ALL HOUSE CONNECTION LATERALS SHALL BE MINIMUM 6 INCH DIAMETER.

17. CONTRACTOR SHALL SET ALL MANHOLE FRAMES AND COVERS TO FINISHED GRADE.

18. CONCRETE ENCASEMENT SHALL BE REQUIRED FOR SEWER MAIN LINE AND HOUSE LATERALS WITH LESS THAN 3 FEET OF COVER.

19. THE CONTRACTOR SHALL MAKE AVAILABLE FOR THE INSPECTOR'S REVIEW, ON A DAILY BASIS, AS-BUILT DRAWINGS FOR WORK PERFORMED UP TO AND INCLUDING THE PREVIOUS DAY'S ACTIVITIES. WORK SHALL NOT BE CONSIDERED AS COMPLETE UNTIL AS-BUILT DRAWINGS ARE SUBMITTED TO AND ACCEPTED BY THE COMMUNITY DEVELOPMENT/PUBLIC WORKS DIRECTOR.

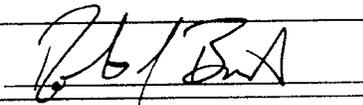
CITY OF TORRANCE

DATE ISSUED

19 FEB 2008

SANITARY SEWER GENERAL NOTES

ROBERT J. BESTE
PUBLIC WORKS DIRECTOR
R.C.E. NO. 50737

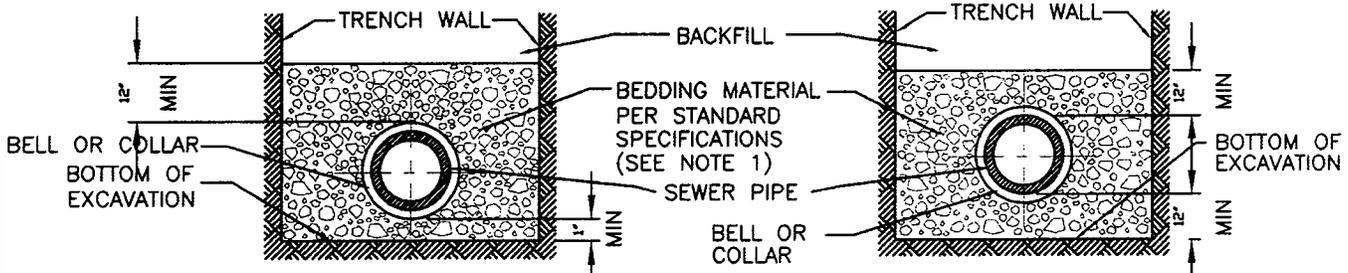


STANDARD NO.

T200

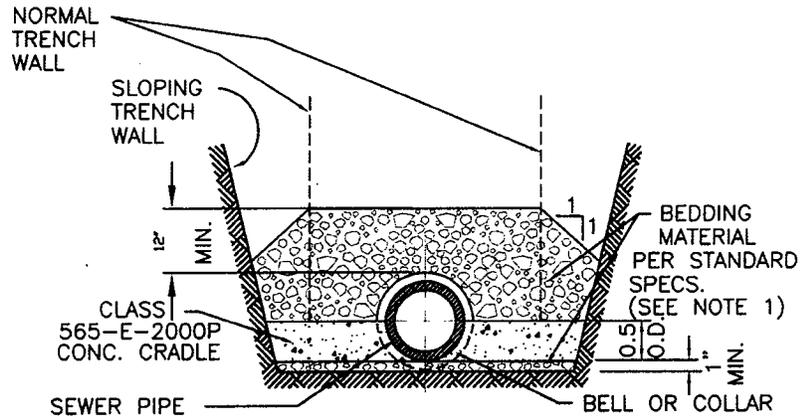
SHEET 2 OF 2

TT/T200



CASE 1: NORMAL TRENCH

CASE 2: WET, SPONGY GROUND, FILLED GROUND (LESS THAN 90% COMPACTION)



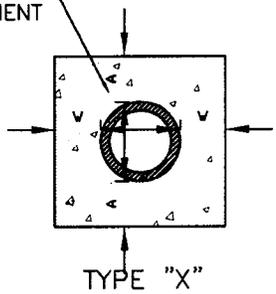
CASE 3: BOTTOM TRENCH WIDTH EXCEEDS THE WIDTH SPECIFIED IN STD. SPECIFICATIONS

NOTE 1: NATIVE MATERIAL AND SAND ARE UNSUITABLE FOR BEDDING OF 8" OR LARGER PIPES.

CONCRETE REINFORCEMENT FOR SEWER PIPE

CLASS 565-E-2000P CONC. REINFORCEMENT

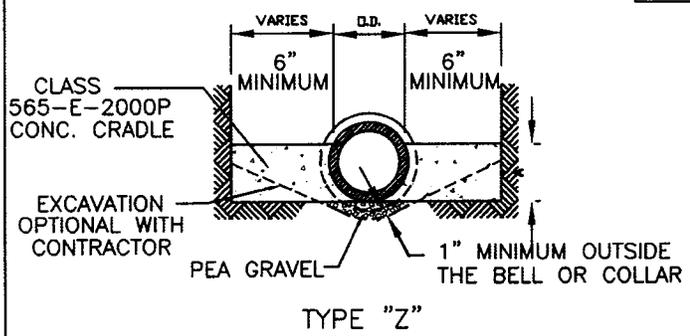
TABLES BELOW INDICATE DIMENSIONS OF CONCRETE FOR DIFFERENT SIZES OF PIPE



TYPE "X"

TYPE "X"						
SIZE	W	A	CLAY PIPE		CONCRETE PIPE	
			STANDARD STRENGTH	EXTRA STRENGTH	STANDARD STRENGTH	EXTRA STRENGTH
6"	4"	4"	0.051	0.051	0.050	0.050
8"	4"	4"	0.063	0.063	0.063	0.063
10"	4"	4"	0.074	0.074	0.074	0.074
12"	4"	4"	0.086	0.086	0.086	0.091
15"	4"	4"	0.107	0.108	0.107	0.114
18"	5"	5"	0.158	0.166	0.159	0.171

SEE NOTE 2



TYPE "Z"

CONCRETE REINFORCEMENT MUST EXTEND TO SOLID BANK

TYPE "Z"					
SIZE	A	CLAY PIPE		CONCRETE PIPE	
		STANDARD STRENGTH	EXTRA STRENGTH	STANDARD STRENGTH	EXTRA STRENGTH
6"	5"	0.017	0.017	0.017	0.017
8"	7"	0.024	0.024	0.024	0.024
10"	9"	0.032	0.032	0.032	0.032
12"	10"	0.037	0.037	0.037	0.037
15"	13"	0.050	0.050	0.050	0.050
18"	16"	0.063	0.064	0.063	0.064

SEE NOTE 2

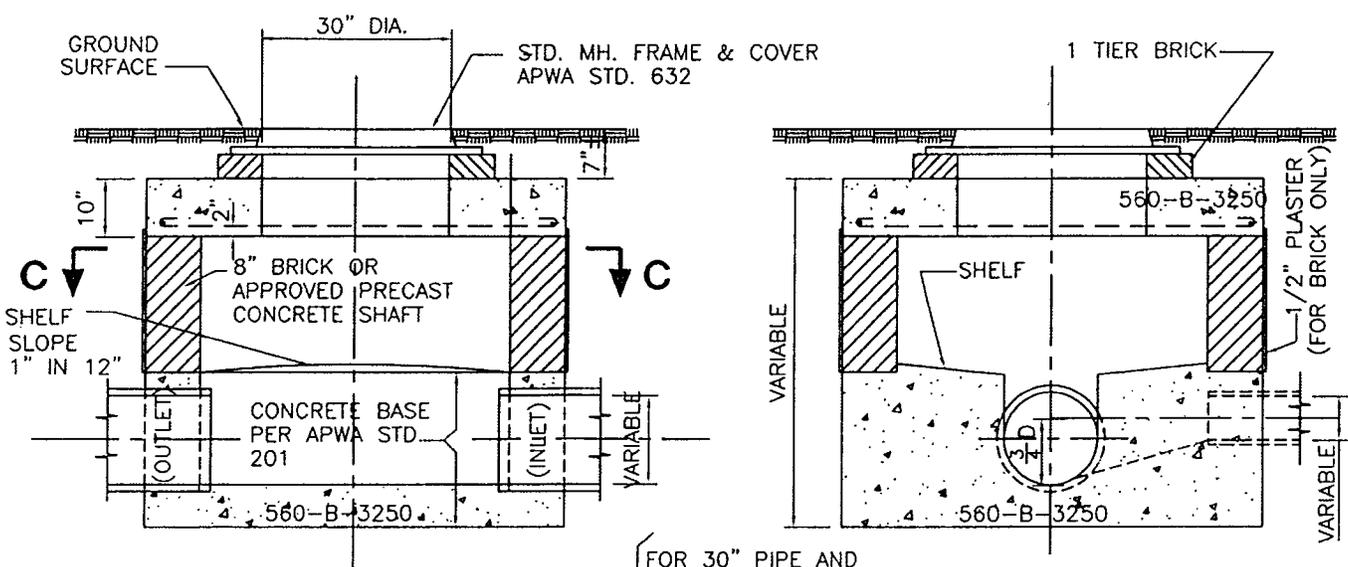
NOTE 2: COLUMNS INCLUDED BETWEEN ARROWS IN THE TABLES ABOVE INDICATE CUBIC YARDS OF CONCRETE PER LINEAR FT. OF PIPE.

CITY OF TORRANCE

DATE ISSUED 23 SEP 2009	BEDDING FOR SEWER PIPE	STANDARD NO. T204
		ROBERT J. BESTE PUBLIC WORKS DIRECTOR R.C.E. NO. 50737

Handwritten signature: RJB

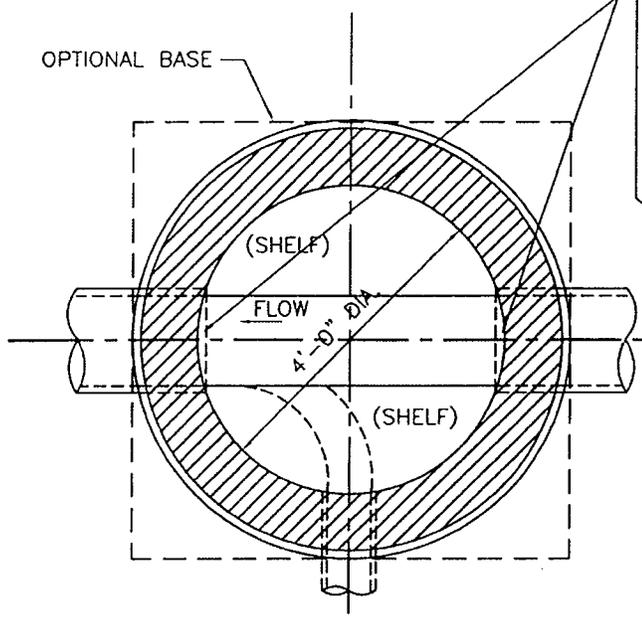
TT/T204



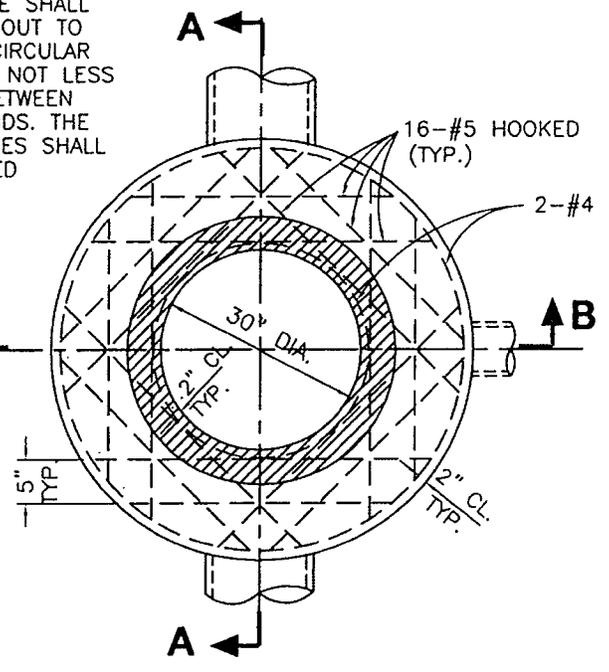
SECTION A-A

SECTION B-B

FOR 30" PIPE AND LARGER THE TOP PORTION OF THE SEWER PIPE WITHIN THE MANHOLE SHALL BE BROKEN OUT TO PROVIDE A CIRCULAR OPENING OF NOT LESS THAN 36" BETWEEN THE PIPE ENDS. THE BROKEN EDGES SHALL BE PLASTERED SMOOTH.



PLAN SECTION C-C



ROOF PLAN

NOTES AND SPECIFICATIONS:

1. IF CONCRETE WALLS ARE USED, THE PRECAST CONCRETE UNITS SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASTM C 478. THE CURING OF THE PRECAST UNITS SHALL CONFORM TO SECTION 207-2.7 OF STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. PRECAST CONCRETE UNITS MAY BE REINFORCED OR UNREINFORCED. REINFORCED SECTIONS SHALL BE REINFORCED IN ACCORDANCE WITH ASTM C 478 AND SHALL HAVE A MINIMUM WALL THICKNESS OF 4".
3. PRECAST CONCRETE UNITS SHALL BE ASSEMBLED USING MORTAR CONFORMING TO SECTION 201-5.1 (CLASS "B") OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. FOR LAYING BRICK OR PLASTERING, THE MORTAR SHALL CONFORM TO SECTION 201-5.1 (CLASS "D").

CITY OF TORRANCE

SHALLOW MANHOLE FOR 8" TO 36" PIPE

STANDARD NO.
T205

DATE ISSUED
02 JUL 2008

ROBERT J. BESTE
PUBLIC WORKS DIRECTOR
R.C.E. NO. 50737

SHEET 1 OF 1

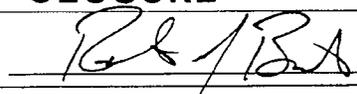
TT\T205

TT/T1004

DATE ISSUED
19 FEB 2008

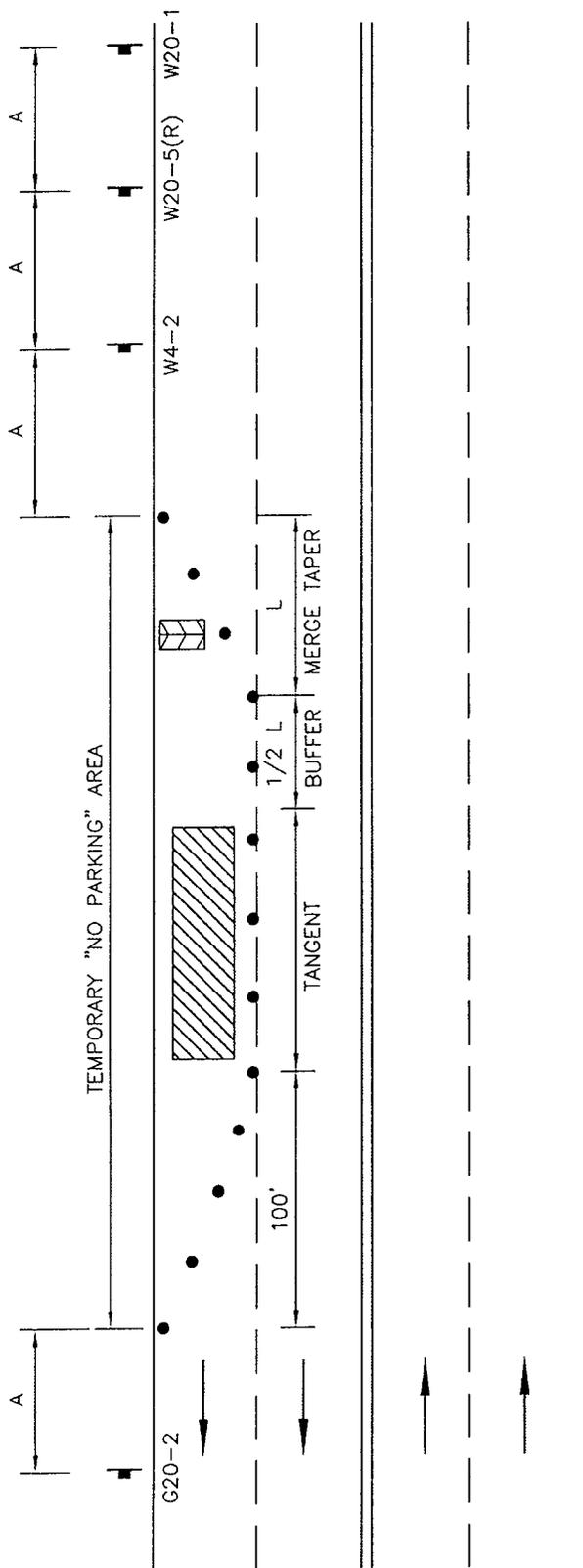
CITY OF TORRANCE - WORK AREA TRAFFIC CONTROL
ARTERIAL & COLLECTOR
RIGHT LANE CLOSURE

ROBERT J. BESTE
PUBLIC WORKS DIRECTOR
R.C.E. NO. 50737

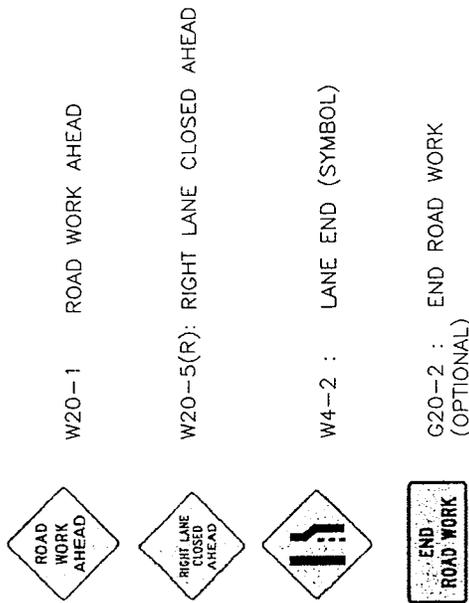


STANDARD NO.
T1004

SHEET 1 OF 1



CONSTRUCTION SIGNS:

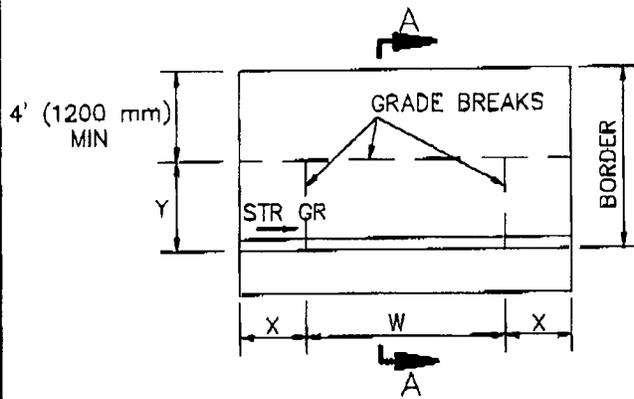


DESIGN SPEED	MINIMUM RECOMMENDED DELINEATOR AND SIGN PLACEMENT		BUFFER LENGTH (1/2 L)
	MERGE TAPER LENGTH (L)	DISTANCE BETWEEN SIGNS (A)	
30 MPH	180 FT.	100 FT.	90 FT
35 MPH	245 FT.	100 FT.	125 FT
40 MPH	320 FT.	100 FT.	160 FT
45 MPH	540 FT.	350 FT.	270 FT
50 MPH	600 FT.	350 FT.	300 FT

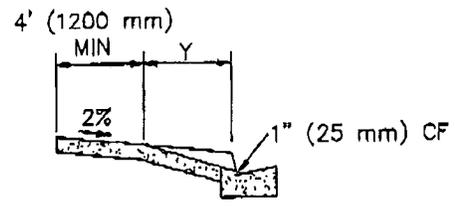
- LEGEND:
- TRAFFIC DRUM OR 36" POST TUBE DELINEATOR
 - SIGN WITH FLAG TREE
 - ▨ FLASHING LEFT ARROW
 - ▨ WORK AREA
 - TRAFFIC DIRECTION

APPENDIX IV

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

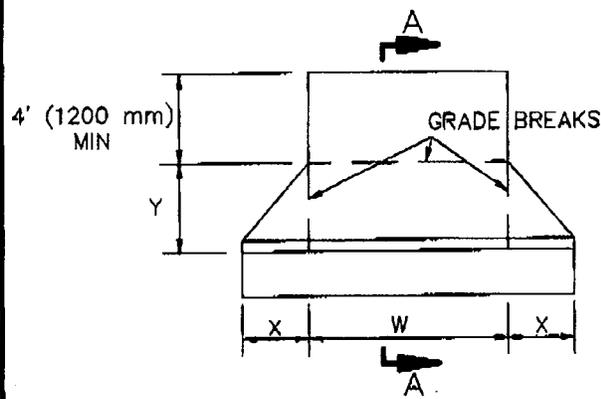


TYPE A

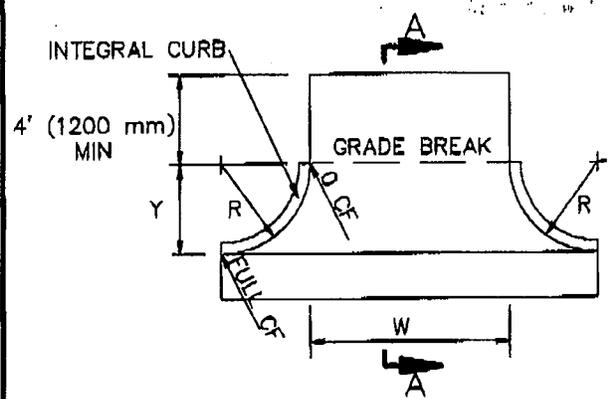


SECTION A-A

CURB FACE, Inches (mm)	X, inches (mm)	Y, inches (mm)
6" (150) or less	3'-0" (900)	4'-0" (1200)
7" (175)	3'-6" (1050)	4'-9" (1425)
8" (200)	4'-0" (1200)	5'-8" (1700)
9" (225)	4'-6" (1350)	6'-6" (1950)
10" (250)	5'-0" (1500)	7'-3" (2175)
11" (275)	5'-6" (1650)	8'-0" (2400)
12" (300) or more	6'-0" (1800)	8'-9" (2625)



TYPE B

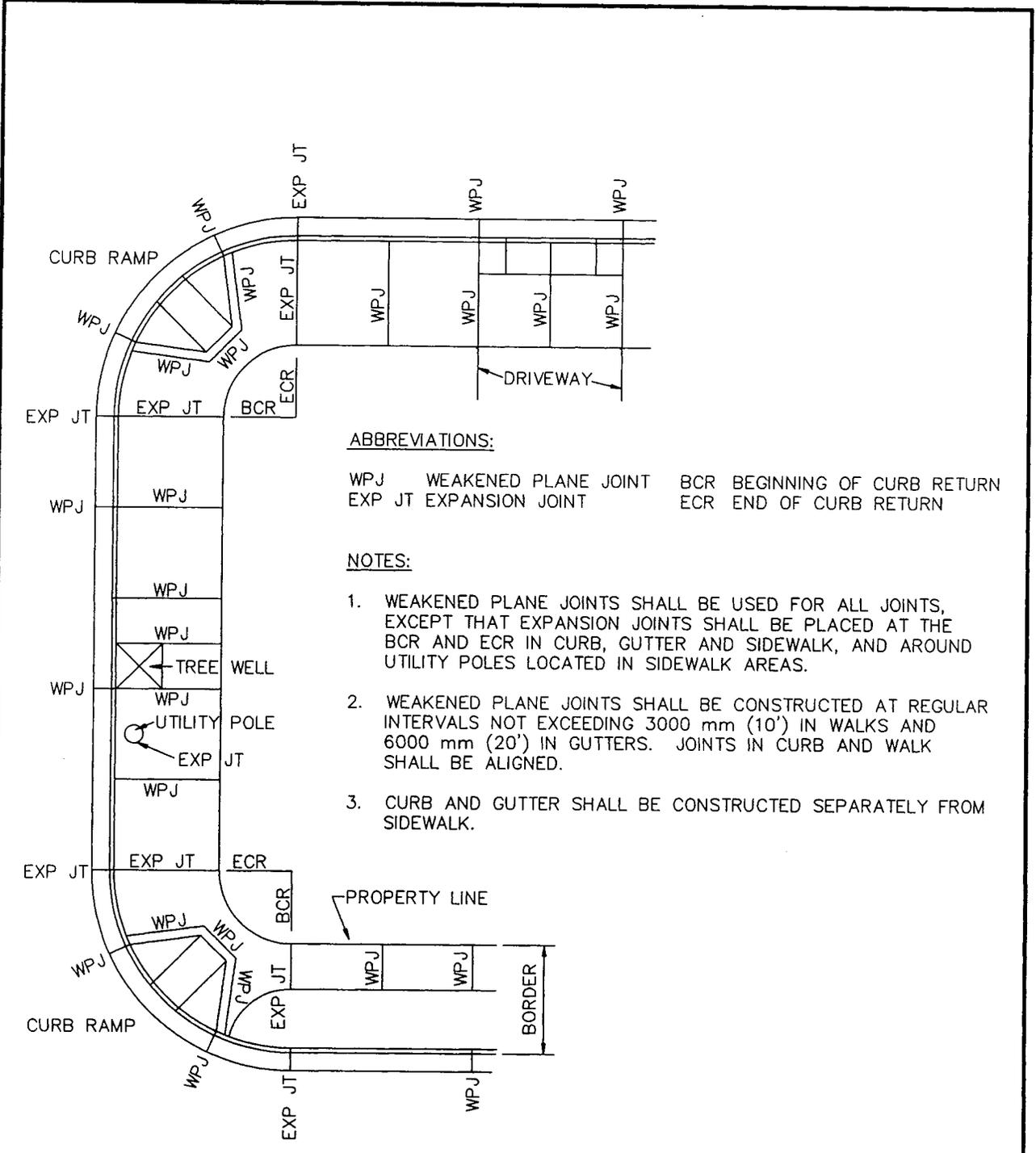


TYPE C

NOTES:

1. RESIDENTIAL DRIVEWAYS SHALL BE 4" (100 mm) THICK PCC.
2. COMMERCIAL DRIVEWAYS SHALL BE 6" (150 mm) THICK PCC.
3. WEAKENED PLANE JOINTS SHALL BE INSTALLED AT BOTH SIDES OF A DRIVEWAY AND AT 10' (3.0 m) INTERVALS.
4. CURB FOR TYPE C DRIVEWAY SHALL BE INTEGRAL AND MATCH ADJACENT CONSTRUCTION.
5. REFER TO LOCAL DEVELOPMENT REGULATIONS FOR AMERICANS WITH DISABILITIES ACCESS REQUIREMENTS AND MAXIMUM PERMITTED DRIVEWAY WIDTHS.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1984 REV. 1998, 2009	DRIVEWAY APPROACHES	STANDARD PLAN 110-2 SHEET 1 OF 1
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION		



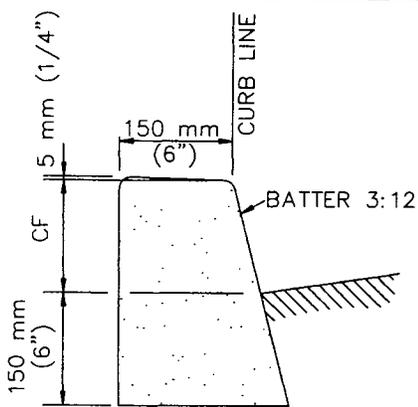
ABBREVIATIONS:

WPJ WEAKENED PLANE JOINT BCR BEGINNING OF CURB RETURN
 EXP JT EXPANSION JOINT ECR END OF CURB RETURN

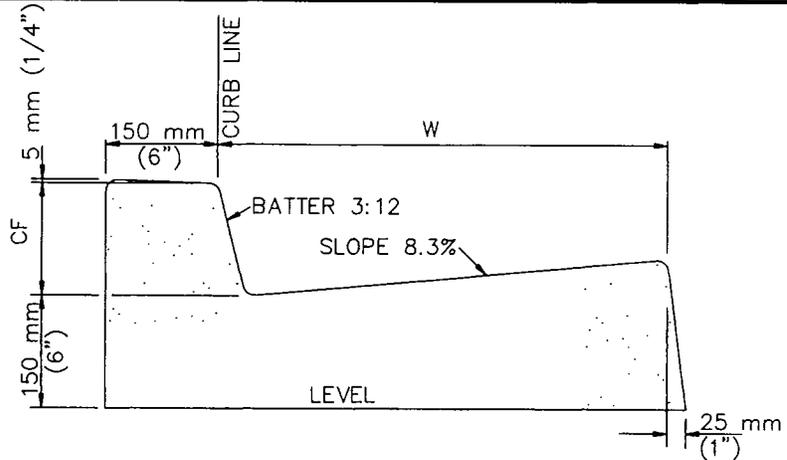
NOTES:

1. WEAKENED PLANE JOINTS SHALL BE USED FOR ALL JOINTS, EXCEPT THAT EXPANSION JOINTS SHALL BE PLACED AT THE BCR AND ECR IN CURB, GUTTER AND SIDEWALK, AND AROUND UTILITY POLES LOCATED IN SIDEWALK AREAS.
2. WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED AT REGULAR INTERVALS NOT EXCEEDING 3000 mm (10') IN WALKS AND 6000 mm (20') IN GUTTERS. JOINTS IN CURB AND WALK SHALL BE ALIGNED.
3. CURB AND GUTTER SHALL BE CONSTRUCTED SEPARATELY FROM SIDEWALK.

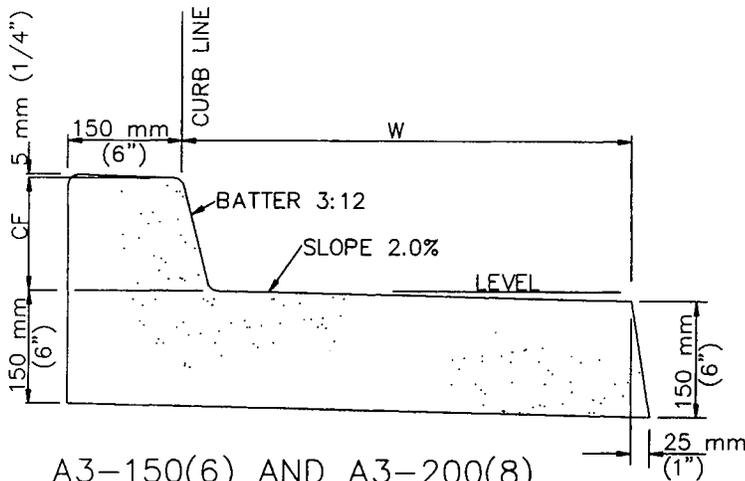
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1984 REV. 1996	<h2 style="margin: 0;">CURB AND SIDEWALK JOINTS</h2>	STANDARD PLAN METRIC <h1 style="margin: 0;">112-1</h1>
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION		SHEET 1 OF 1



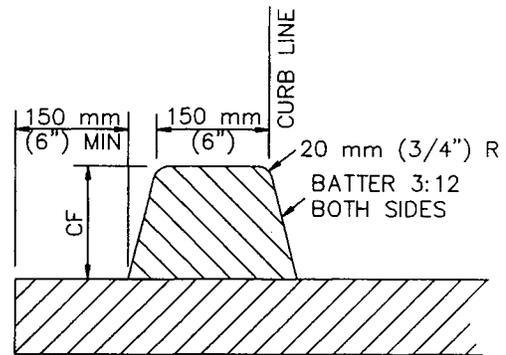
A1-150(6) AND
A1-200(8)



A2-150(6) AND A2-200(8)



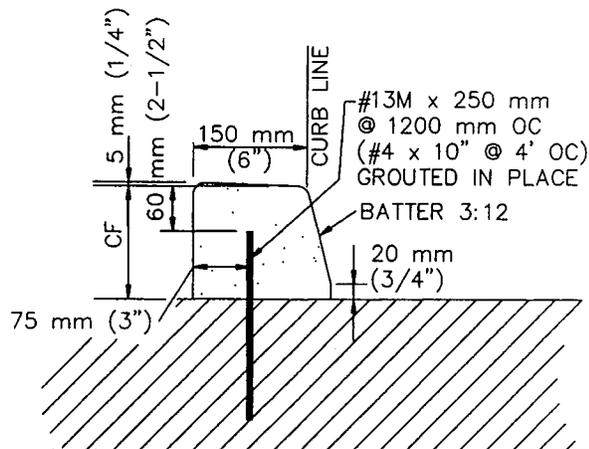
A3-150(6) AND A3-200(8)



D1-150(6) AND
D1-200(8)

NOTES:

1. THE LAST NUMBER IN THE DESIGNATION IS THE CURB FACE (CF) HEIGHT, mm (INCHES).
2. GUTTER WIDTH, W, IS 600 mm (24") UNLESS OTHERWISE SPECIFIED.
3. TYPES A1, A2, A3 AND C1 SHALL BE CONSTRUCTED FROM PCC.
4. TYPE D1 CURB SHALL BE CONSTRUCTED FROM ASPHALT CONCRETE.
5. TYPE C1 CURB SHALL BE ANCHORED WITH STEEL DOWELS AS SHOWN OR WITH AN EPOXY APPROVED BY THE ENGINEER.
6. ALL EXPOSED CORNERS ON PCC CURBS AND GUTTERS SHALL BE ROUNDED WITH A 15 mm (1/2") RADIUS.



C1-150(6) AND C1-200(8)

STANDARD PLAN FOR PUBLIC WORKS CONSTRUCTION

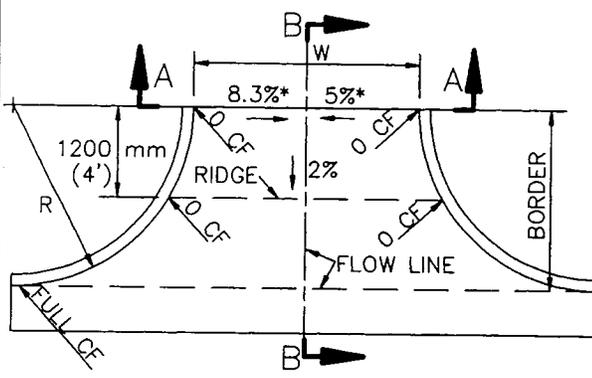
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CURB AND GUTTER - BARRIER

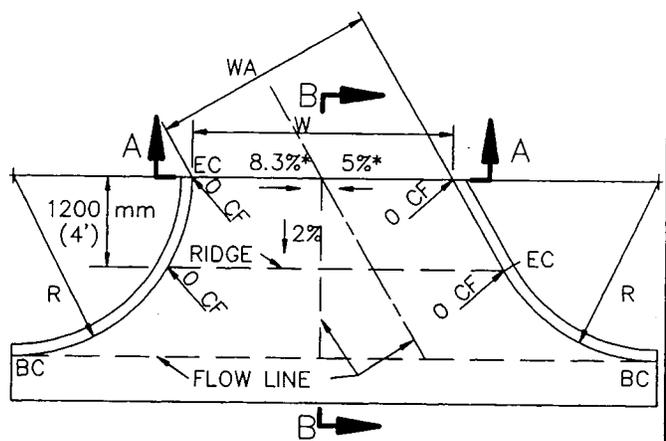
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN
METRIC
120-1

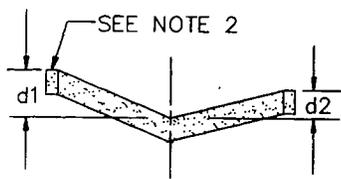
SHEET 1 OF 1



STANDARD APPROACH



ANGLED APPROACH



SECTION
A-A



SECTION
B-B

W, mm	2400 (8')	3000 (10')	4500 (15')	6000 (20')	7500 (25')	9000 (30')
d1, mm MAX	100 (0.33')	125 (0.42')	188 (0.63')	250 (0.83')	313 (1.04')	375 (1.25')
d2, mm MIN	50 (0.17')	75 (0.25')	75 (0.25')	75 (0.25')	75 (0.25')	75 (0.25')

NOTES:

1. FOR CASE A, THE RADIUS OF THE CURB RETURN, R, IS EQUAL TO THE PARKWAY WIDTH.
2. ALLEY INTERSECTION SHALL BE PCC, CLASS 310-C-17 (520-C-2500), 150 mm (6") THICK. CURB SHALL BE INTEGRAL TYPE "A".
3. ASTERISKS, *, SHOW MAXIMUM GRADES.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

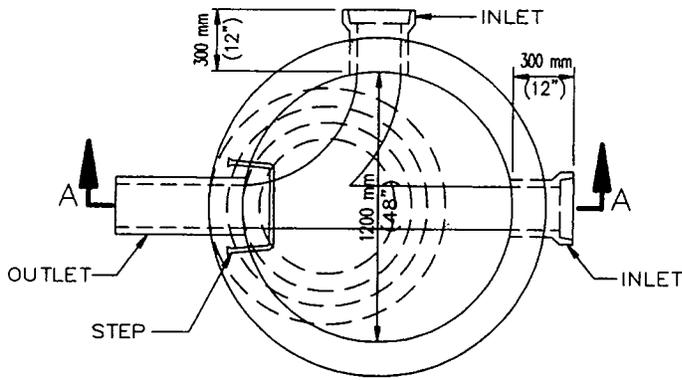
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1984
REV. 1996

ALLEY INTERSECTION

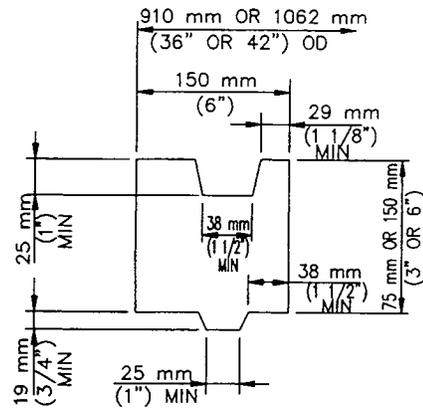
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN
METRIC
130-1

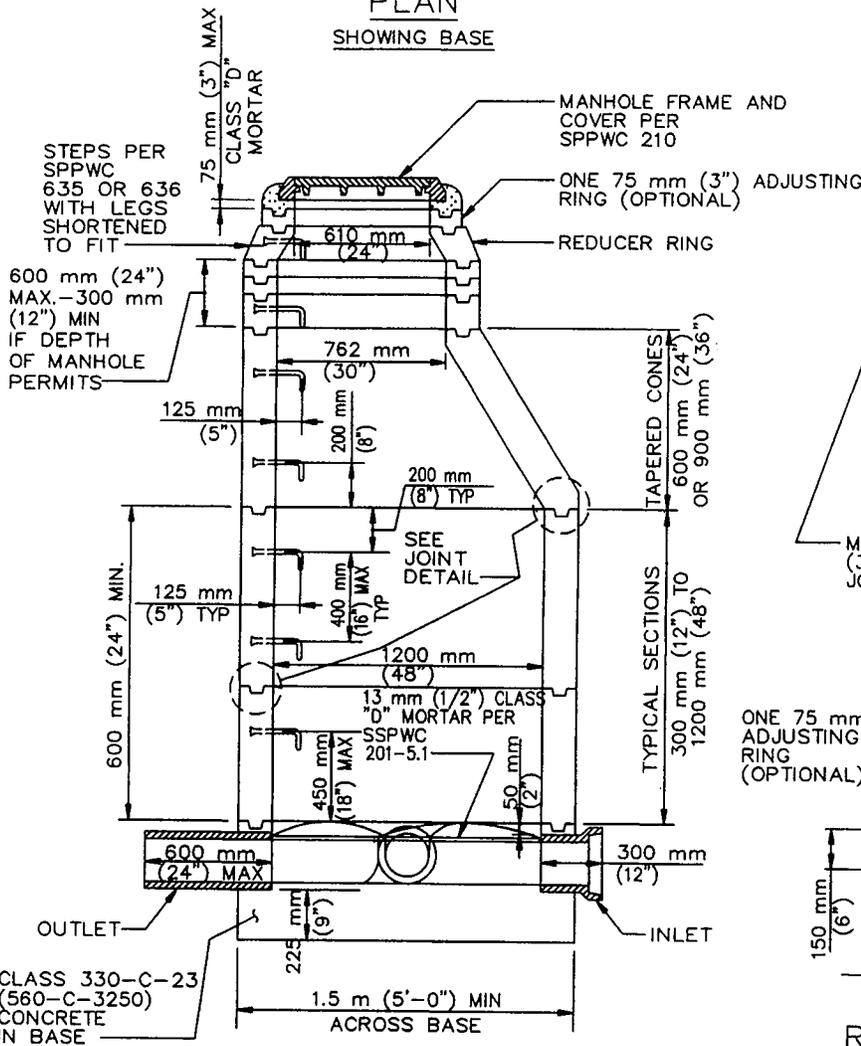
SHEET 1 OF 1



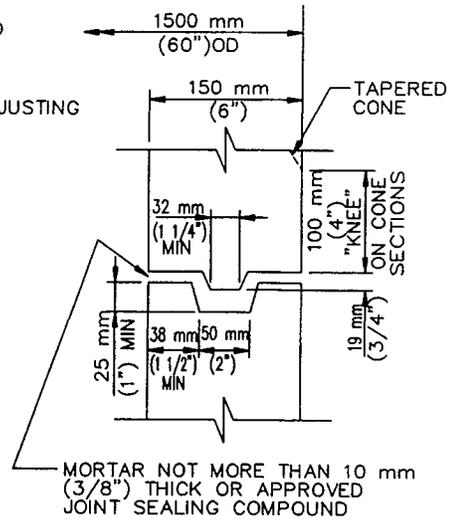
PLAN
SHOWING BASE



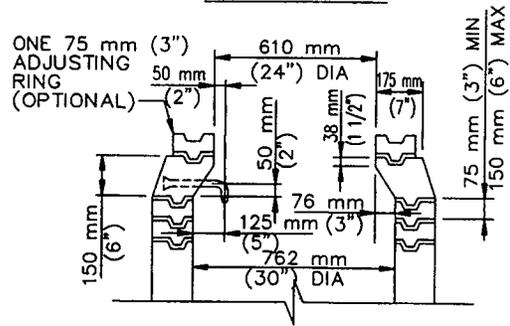
ADJUSTING RING DETAIL



SECTION A-A



JOINT DETAIL
NON-REINFORCED



REDUCER RING AND ADJUSTING RINGS

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE
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GREENBOOK COMMITTEE
1984
REV. 1993, 1995

**PRECAST CONCRETE
SEWER MANHOLE**

STANDARD PLAN
METRIC
200-2

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

SHEET 1 OF 2

NOTES:

1. EXCEPT AS NOTED HEREON, THE PRECAST UNITS SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASTM C 478. AS AN ALTERNATE CURING METHOD, THE UNITS MAY BE CURED USING SATURATED STEAM FOR A MINIMUM OF 12 HOURS FOLLOWED BY 6 DAYS OF WATER CURING OR MEMBRANE CURING. IF THE UNITS ARE CURED BY THE ALTERNATE METHOD, THEY SHALL NOT BE SHIPPED PRIOR TO 8 DAYS AFTER CASTING NOR UNTIL THE CONCRETE HAS ATTAINED A STRENGTH OF 25 MPa (3500 PSI)
2. MANHOLE STEPS SHALL CONFORM TO SPPWC 635 TYPE 1 OR 3 OR SPPWC 636. THE MANHOLE STEPS SHALL BE UNIFORMLY SPACED AT A MAXIMUM OF 400 mm (16"). THE LOWEST STEP SHALL BE PLACED NOT LESS THAN 200 mm (8") NOR MORE THAN 450 mm (18") ABOVE THE SHELF. THE STEPS SHALL PROJECT 125 mm (5") INSIDE THE MANHOLE.
3. RISER SECTIONS MAY BE REINFORCED OR UNREINFORCED. REINFORCED SECTIONS SHALL BE REINFORCED IN ACCORDANCE WITH ASTM C 478 AND SHALL HAVE A MINIMUM WALL THICKNESS OF 125 mm (5"). UNREINFORCED RISER SECTIONS SHALL HAVE A MINIMUM WALL THICKNESS OF 150 mm (6").
4. THE 600 mm x 1200 mm (24"x48") ECCENTRIC CONES MAY BE REINFORCED OR UNREINFORCED. IF REINFORCED, THE WALL THICKNESS SHALL BE NOT LESS THAN 125 mm (5"). IF UNREINFORCED, THE WALL THICKNESS SHALL NOT BE LESS THAN 150 mm (6").
5. JOINTS SHALL BE TONGUE AND GROOVE. JOINTS FOR REINFORCED STRUCTURES SHALL CONFORM WITH ASTM C 478 SECTION 14.
6. PRECAST UNITS SHALL BE ASSEMBLED USING CLASS "B" MORTAR.
7. IF 762 mm (30") DIAMETER MANHOLE FRAME AND COVER IS REQUIRED, IT SHALL BE INSTALLED WHERE THE REDUCER RING IS SHOWN IN THE SECTION.
8. FOR REINFORCED PRECAST STRUCTURES, ALL REINFORCEMENT SHALL HAVE A MINIMUM OF 50 mm (2") OF COVER OVER THE STEEL ON THE INSIDE FACE.
9. THE TOP OPENING OF THE MANHOLE AND THE STEPS SHALL BE PLACED DIRECTLY OVER THE OUTLET OF THE STRUCTURE EXCEPT AS OTHERWISE NOTED ON PLANS.
10. CONCRETE BASE AND STUB WALLS SHALL BE POURED IN ONE OPERATION TO A POINT 50 mm (2") ABOVE THE INLET AND OUTLET PIPES. ALL PIPES SHALL BE RIGIDLY SUPPORTED BY TEMPORARY PIERS OR OTHER METHODS DURING THE OPERATION. CONCRETE SHALL SET FOR 24 HOURS BEFORE PLACING PRECAST UNITS.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

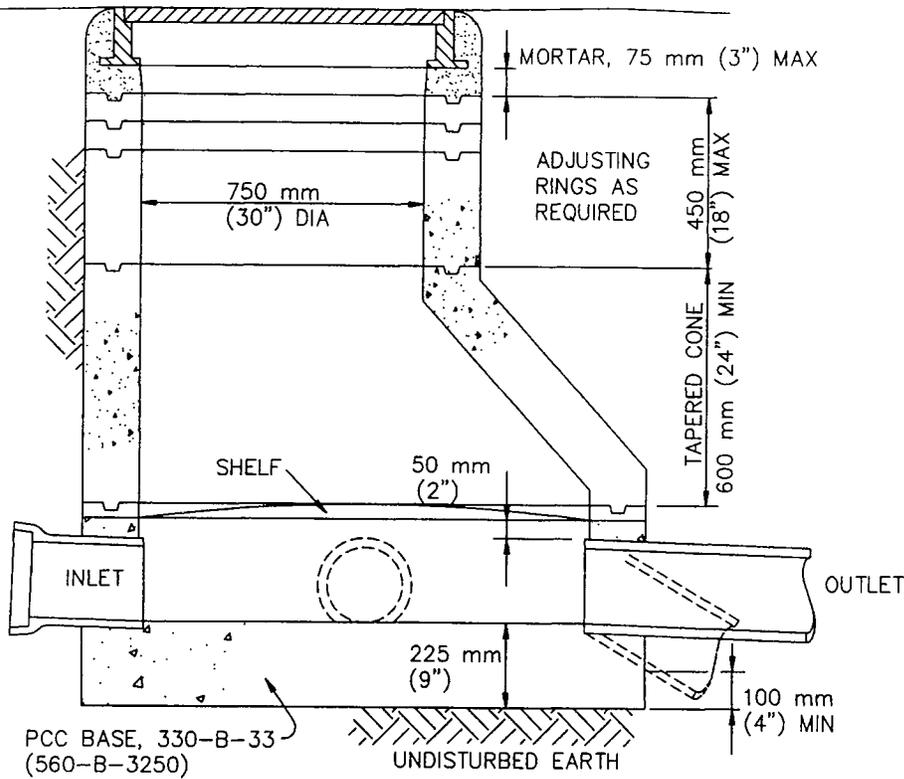
**PRECAST CONCRETE
SEWER MANHOLE**

STANDARD PLAN
METRIC

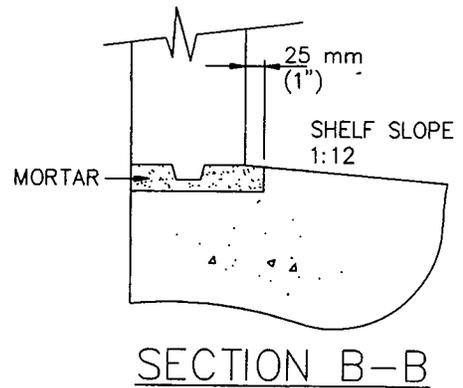
200-2

SHEET 2 OF 2

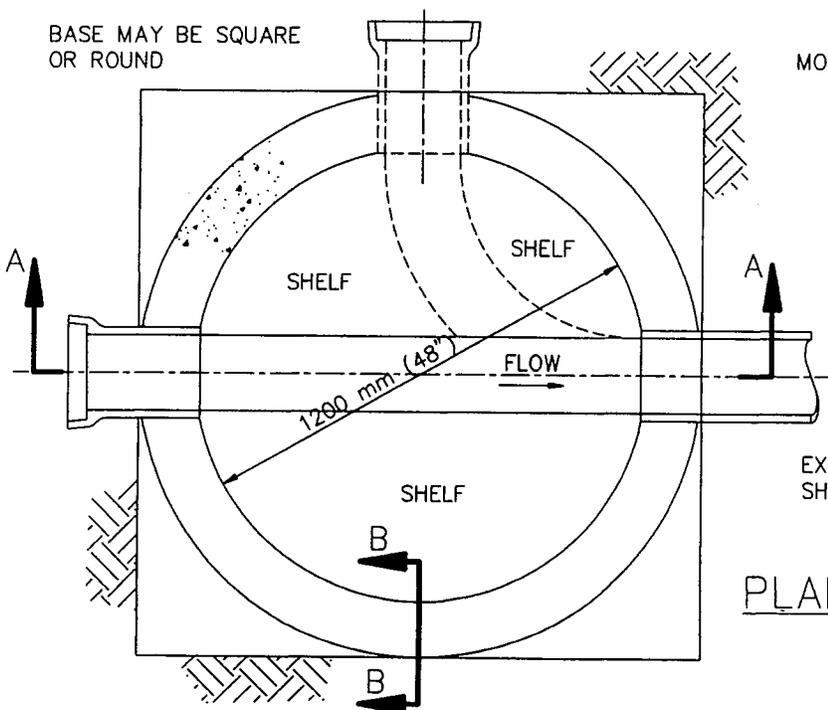
FRAME & COVER PER SPPWC 632



SECTION A-A



SECTION B-B



PLAN

EXCEPT AS SHOWN HEREON, MANHOLES SHALL CONFORM TO SPPWC 200.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

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1994
REV. 2005

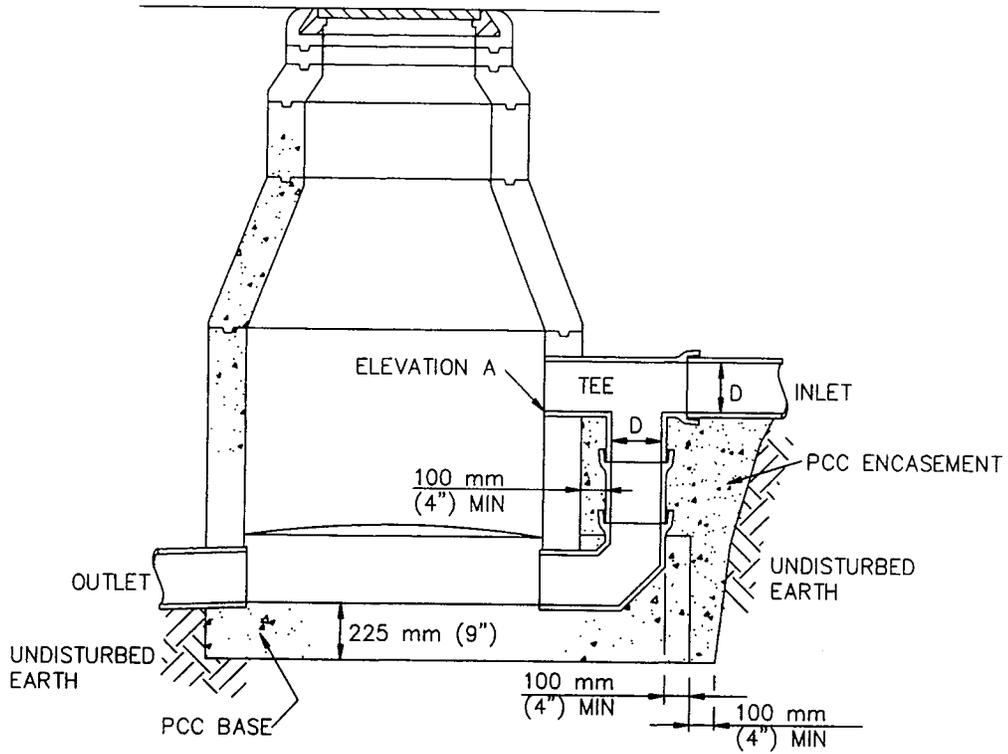
PRECAST CONCRETE SHALLOW MANHOLE

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

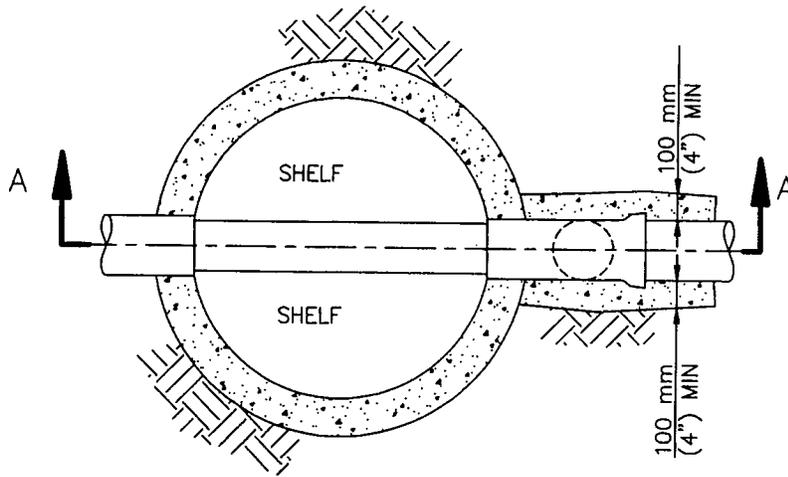
STANDARD PLAN
METRIC

201-1

SHEET 1 OF 1



SECTION A-A



PLAN

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE
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GREENBOOK COMMITTEE
1993
REV. 2005

DROP SEWER MANHOLE

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN
METRIC

202-1

SHEET 1 OF 2

NOTES:

1. EXCEPT AS SHOWN ON THIS PLAN, MANHOLES SHALL CONFORM TO SPPWC 200 OR 203.
2. PIPE FOR THE DROP INLET SHALL BE THE SAME MATERIAL AS THE SEWER UNLESS APPROVED ADAPTERS ARE USED. IF SO, THE PIPE MAY BE VCP, ABS SOLID WALL, ABS COMPOSITE, PVC PLASTIC, OR POLYETHELYNE.
3. FOR BRICK MANHOLES, A BRICK ARCH IS ALSO REQUIRED OVER THE UPPER INLET PIPE.
4. IF TWO OR MORE DROP INLETS ARE REQUIRED IN A SINGLE MANHOLE, EACH SHALL BE CONSTRUCTED SEPARATELY.

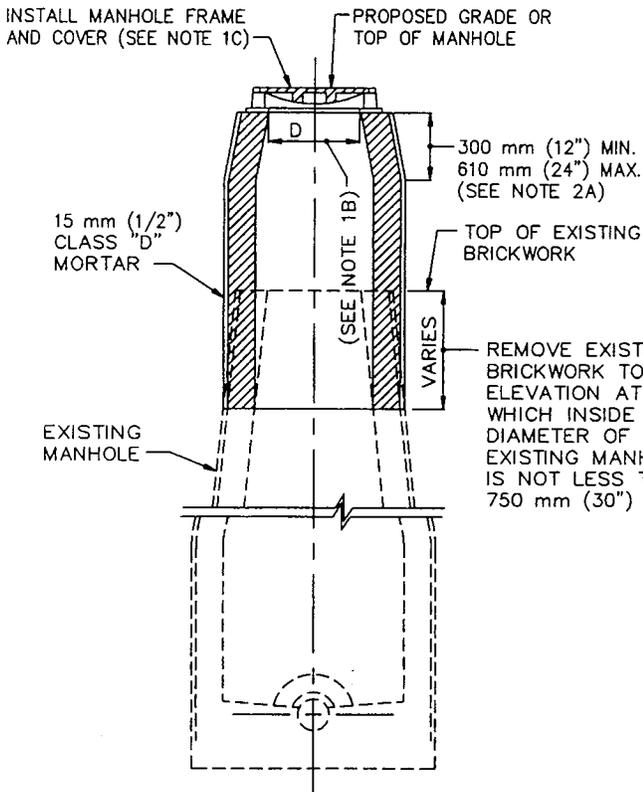
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

DROP SEWER MANHOLE

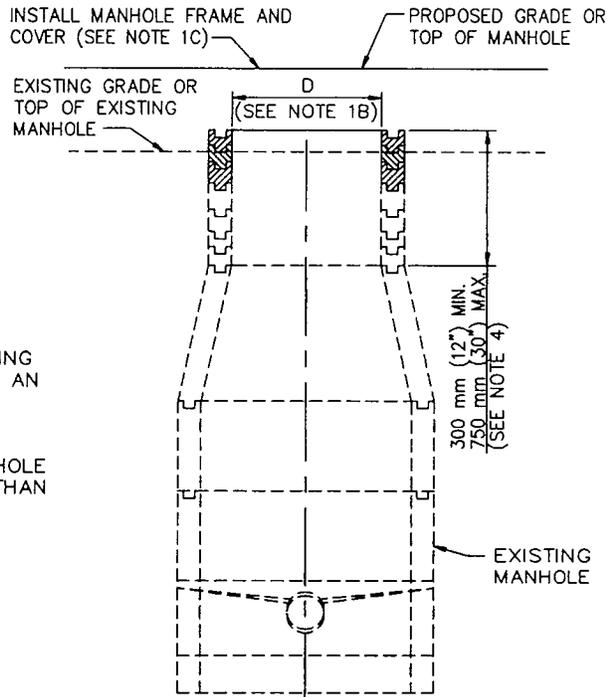
STANDARD PLAN
METRIC

202-1

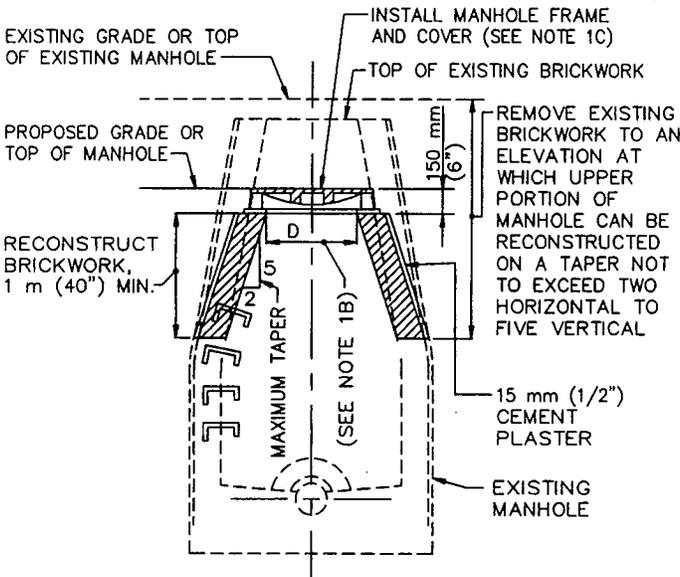
SHEET 2 OF 2



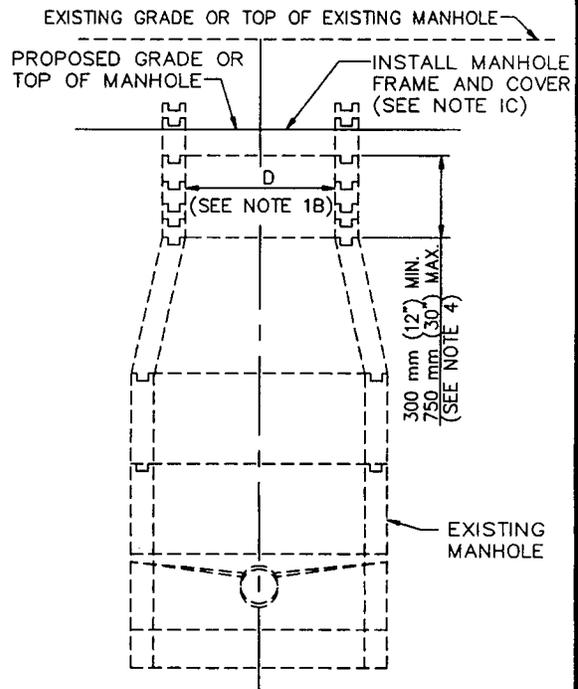
RAISING EXISTING BRICK MANHOLES



RAISING EXISTING PRECAST CONCRETE SEWER MANHOLES



LOWERING EXISTING BRICK MANHOLES



LOWERING EXISTING PRECAST CONCRETE SEWER MANHOLES

BRICK MANHOLES

PRECAST CONCRETE SEWER MANHOLES

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE
PUBLIC WORKS STANDARD, INC.
GREENBOOK COMMITTEE
1984
REV. 1996

SEWER MANHOLE ADJUSTMENT

STANDARD PLAN
METRIC
205-1

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

SHEET 1 OF 3

NOTES:

1. GENERAL

- A. EXCEPT AS INDICATED HEREON OR ON THE PLANS, MANHOLES SHALL CONFORM TO: SPPWC 200, PRECAST CONCRETE SEWER MANHOLE AND SPPWC 203, BRICK SEWER MANHOLE.
- B. DIMENSION "D" SHALL BE THE SAME AS THE SIZE OF MANHOLE FRAME AND COVER TO BE USED.
- C. THE CONTRACTOR MAY REUSE THE EXISTING MANHOLE FRAME AND COVER, UNLESS DAMAGED DURING THE WORK OR WHEN OTHERWISE SHOWN IN THE CONTRACT DOCUMENTS. ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED WITH IDENTICAL NEW ITEMS AT NO EXPENSE TO THE AGENCY.
- D. EXISTING STEPS LOCATED WITHIN REMOVAL LIMITS SHALL BE REPLACED. WHEN REMOVAL OF EXISTING STEPS BEYOND THE MANHOLE REMOVAL LIMITS IS SHOWN ON THE PLANS, THE STEPS SHALL BE REMOVED TO A DEPTH OF 50 mm (2") BEYOND THE INSIDE FACE OF THE BRICK MANHOLE AND THE HOLES SHALL BE FILLED WITH CLASS "D" MORTAR.

2. RAISING EXISTING BRICK MANHOLES

- A. BRICK MANHOLES TO BE RAISED LESS THAN 300 mm (1') MAY BE EXTEND VERTICALLY, PROVIDED THAT AT A DEPTH OF 750 mm (2 1/2') BELOW THE TOP OF THE MANHOLE AT ITS NEW ELEVATION, THE INSIDE DIAMETER OF THE MANHOLE IS 750 mm (30") OR GREATER.
- B. BRICK MANHOLES TO BE RAISED LESS THAN 90 mm (3 1/2") MAY BE RAISED BY APPLYING CLASS "D" MORTAR TO THE TOP OF THE EXISTING BRICKWORK. IF THE BRICK MANHOLE IS TO BE RAISED 90 mm (3 1/2") OR MORE, A NEW COURSE OR COURSES OF BRICKWORK SHALL BE PLACED ON TOP OF THE EXISTING BRICKWORK.

3. LOWERING EXISTING BRICK MANHOLES

- A. WHERE A BRICK MANHOLE IS TO BE LOWERED LESS THAN 300 mm (1'), THE FRAME MAY BE RESET ON THE EXISTING BRICKWORK AND THE 1 m (40") MINIMUM BRICKWORK RECONSTRUCTION OMITTED, PROVIDED THAT THE BASE OF THE FRAME DOES NOT OVERHANG THE BRICKWORK ON THE INSIDE SURFACE OF THE MANHOLE MORE THAN AN AVERAGE OF 35 mm (1 1/2") IN ANY QUADRANT NOR MORE THAN 50 mm (2") AT ANY POINT.

4. RAISING EXISTING PRECAST CONCRETE SEWER MANHOLES

- A. PRECAST CONCRETE MANHOLES TO BE RAISED LESS THAN 75 mm (3") MAY BE RAISED BY APPLYING CLASS "D" MORTAR TO THE TOP OF THE EXISTING MANHOLE, PROVIDED THE TOTAL HEIGHT OF MORTAR, EXISTING AND NEWLY APPLIED, DOES NOT EXCEED 75 mm (3").
- B. WHERE THE PRECAST CONCRETE MANHOLE IS TO BE RAISED 75 mm (3") OR MORE, OR WHERE THE TOTAL HEIGHT OF MORTAR, EXISTING AND NEWLY APPLIED, WOULD EXCEED 75 mm (3"), GRADE RINGS SHALL BE UTILIZED. CLASS "D" MORTAR MAY BE USED FOR FINAL ADJUSTMENT, BUT NOT MORE THAN 75 mm (3") IN HEIGHT. WHERE RAISING THE MANHOLE WOULD RESULT IN THE UPPER SEGMENT OF THE SHAFT BEING MORE THAN 750 mm (30") IN HEIGHT, REMOVE THE REDUCER AND THE UPPER SEGMENT OF THE SHAFT, INSTALL ADDITIONAL RINGS OR PIPE TO THE LOWER SEGMENT OF THE SHAFT, AND REINSTALL THE REDUCER AND GRADE RINGS AS REQUIRED.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

SEWER MANHOLE ADJUSTMENT

STANDARD PLAN
METRIC

205-1

SHEET 2 OF 3

5. LOWERING EXISTING PRECAST CONCRETE SEWER MANHOLES
 - A. REMOVE SUFFICIENT GRADE RINGS TO LOWER THE MANHOLES AS REQUIRED, APPLY CLASS "D" MORTAR TO A HEIGHT NOT EXCEEDING 75 mm (3") FOR ADJUSTMENT TO FINAL GRADE.
 - B. WHERE REMOVAL OF GRADE RINGS WOULD RESULT IN THE UPPER SEGMENT OF THE SHAFT BEING LESS THAN 300 mm (12") IN HEIGHT, REMOVE THE REDUCER AND SUFFICIENT SECTIONS OF THE LOWER SEGMENT OF THE SHAFT AND REINSTALL ANY NECESSARY SEGMENT OF THE LOWER SHAFT, THE REDUCER, AND THE GRADE RINGS TO CONFORM TO THE REQUIREMENTS OF THIS PLAN.
 - C. EXISTING GRADE RINGS NEED NOT BE REMOVED IF EXISTING MORTAR IS REMOVED, AND AT LEAST 35 mm (1 1/2") OF MORTAR MAY BE PLACED ON TOP OF THE EXISTING GRADE RINGS TO RESEAT THE FRAME.

6. REPLACEMENT OF BRICK REDUCER WITH PRECAST CONCRETE REDUCER AND SHAFT

UNLESS OTHERWISE INDICATED ON THE PLANS, THE CONTRACTOR MAY INSTALL A PRECAST CONCENTRIC CONCRETE REDUCER, CONCRETE GRADE RINGS, AND CONCRETE PIPE IN LIEU OF RECONSTRUCTING A BRICK REDUCER, PROVIDED:

 - A. THE MAXIMUM ID OF SEWER PIPE CONNECTED TO THE MANHOLE DOES NOT EXCEED 200 mm (8").
 - B. THE CONTRACTOR SECURES PRIOR APPROVAL FROM THE ENGINEER TO INSTALL THE CONCENTRIC REDUCER ONTO THE MANHOLE SHAFT. THE ENGINEER MAY, AS PART OF THE INSTALLATION REQUIREMENTS, REQUIRE THE CONTRACTOR TO COAT THE INSIDE OF THE REDUCER, RINGS, AND PIPE WITH AN APPROVED COATING.
 - C. THE CONCRETE GRADE RINGS, THE CONCRETE REDUCER, AND ANY CONCRETE PIPE SHALL BE JOINED TOGETHER AND BEDDED ONTO THE EXISTING BRICK MANHOLE WITH CLASS "D" MORTAR. THE DEPTH, WIDTH, AND THICKNESS OF THE MORTAR SHALL BE OF SUFFICIENT DIMENSIONS TO PROPERLY AND ADEQUATELY JOIN AND BED THE COMPONENT PARTS.

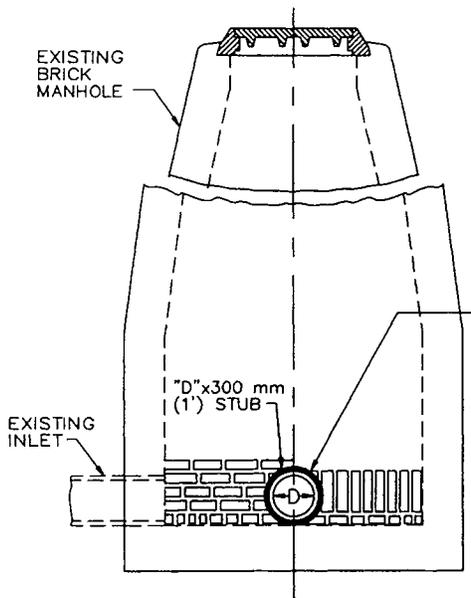
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

SEWER MANHOLE ADJUSTMENT

STANDARD PLAN
METRIC

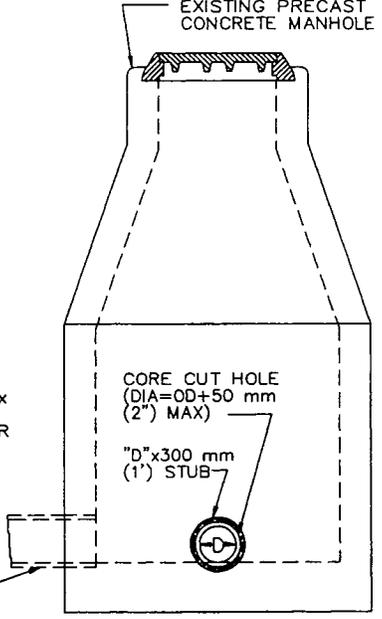
205-1

SHEET 3 OF 3

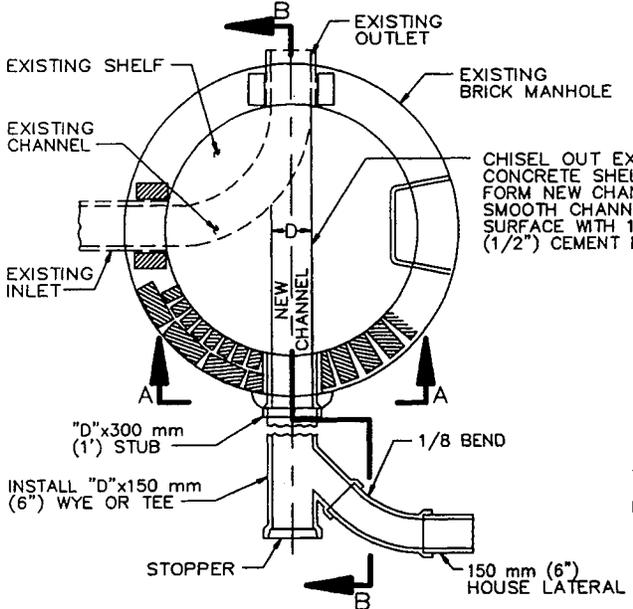


SECTIONAL ELEVATION A-A

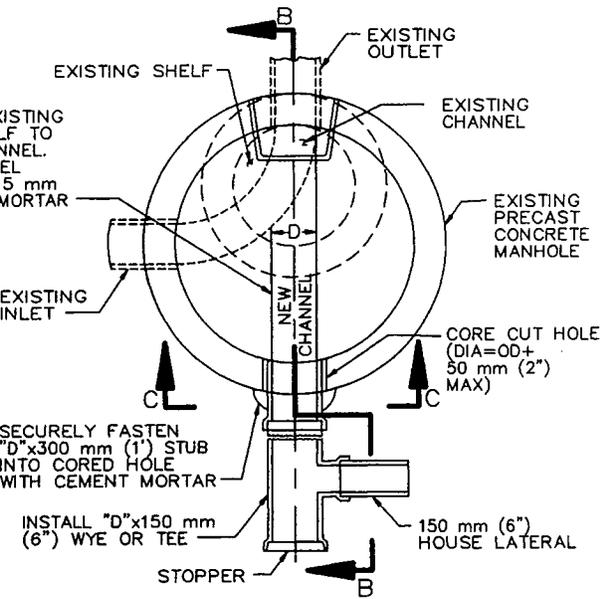
CORE CUT HOLE OR
BREAK OUT BRICKS
CAREFULLY AND NEATLY
TO FORM MINIMUM
OPENING OF OD + 50 mm
(2"). SECURELY FASTEN "D"x
300 mm (1') STUB INTO
HOLE WITH CEMENT MORTAR



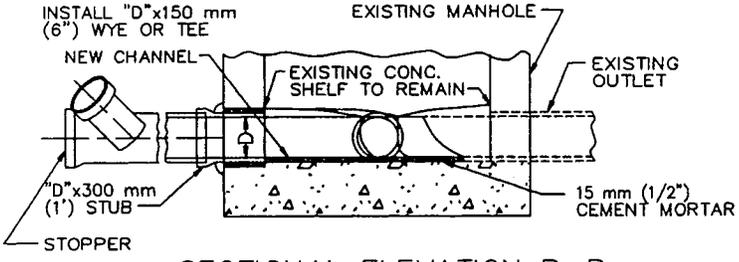
SECTIONAL ELEVATION C-C



SECTIONAL PLAN OF BASE



SECTIONAL PLAN OF BASE



SECTIONAL ELEVATION B-B
CHANNEL BASE

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE
PUBLIC WORKS STANDARDS, INC.,
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1984
REV. 1996

BREAKING INTO EXISTING MANHOLES

STANDARD PLAN
METRIC
208-1

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

SHEET 1 OF 2

NOTES:

1. INVERT ELEVATION OF "D" x 300 mm (1') STUB AT THE INSIDE FACE OF MANHOLE TO BE 30 mm (0.10') HIGHER THAN EXISTING OUTLET INVERT ELEVATION.
2. THE CORE CUT HOLE SHALL BE MADE WITH EQUIPMENT SPECIALLY DESIGNED TO CUT A SMOOTH HOLE WITHOUT SPALLING OR DAMAGE TO THE REINFORCING STEEL OR STRUCTURE.
3. "D" TO BE 200 mm (8") MINIMUM.
4. ALL WORK SHALL BE UNCOVERED AND CONVENIENT FOR THE INSPECTION.
5. ALL CEMENT MORTAR SHALL BE CLASS "D" PER SSPWC 201-5.1.

HOUSE LATERAL NOTES:

1. WYE SHALL BE LAID WITH 3 mm (1/8") RISE PER 300 mm (1") AND 150 mm (6") SPUR AT 45° FROM HORIZONTAL UNLESS OTHERWISE NOTED ON PLANS.
2. "D" X 100 mm (4") WYE OR TEE AND 100 mm (4") HOUSE LATERAL MAY BE SUBSTITUTED FOR "D" x 150 mm (6") WYE OR TEE AND 150 mm (6") HOUSE LATERAL.
3. USE TYPE "D" OR "G" JOINTS PER SSPWC 208-2.

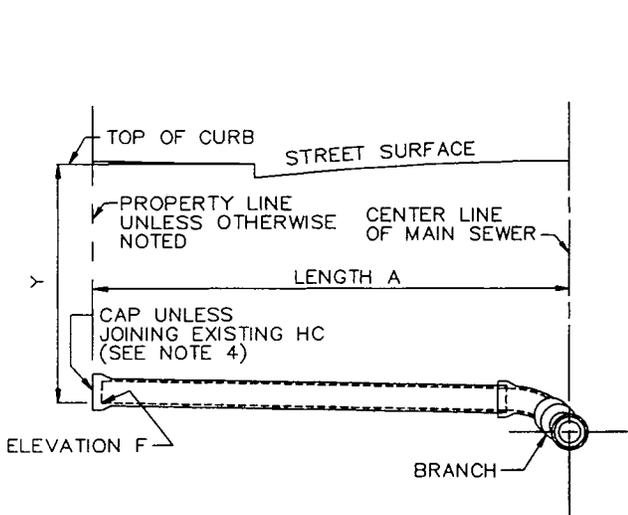
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

BREAKING INTO EXISTING MANHOLES

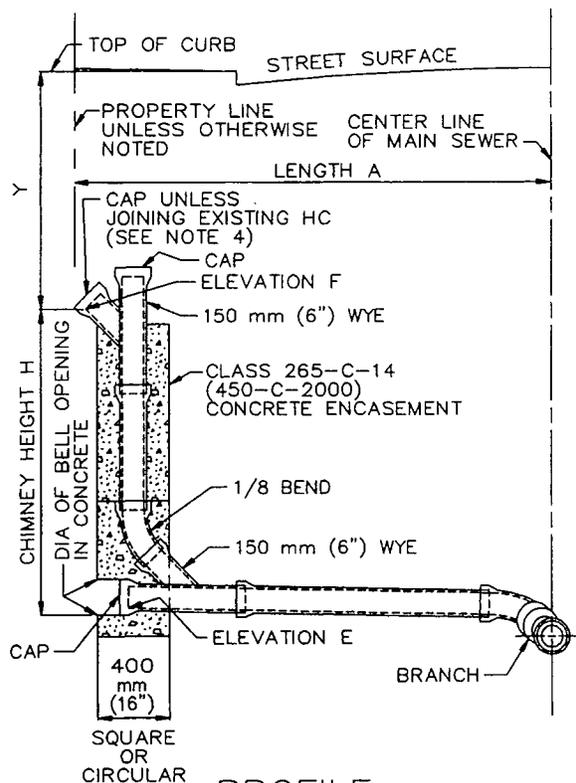
STANDARD PLAN
METRIC

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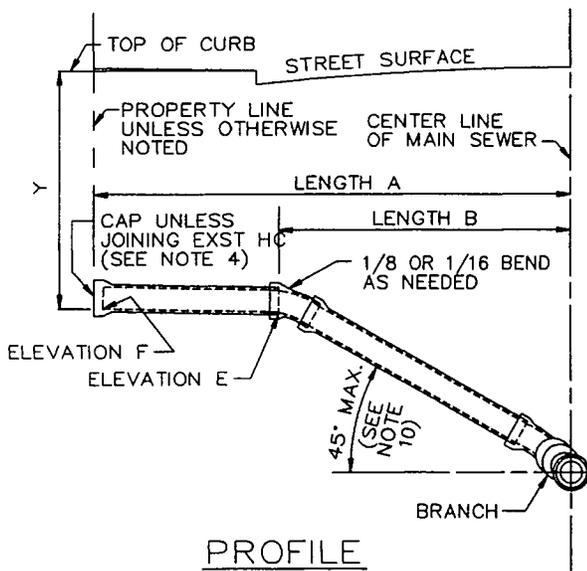
SHEET 2 OF 2



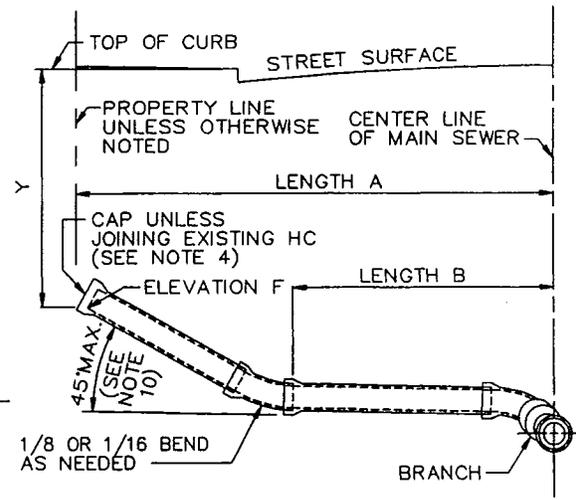
PROFILE
TYPE A



PROFILE
TYPE B



PROFILE
TYPE C



PROFILE
TYPE D

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

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1984
REV. 1995

HOUSE CONNECTION SEWER

STANDARD PLAN
METRIC
222-1

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

SHEET 1 OF 2

NOTES

1. EXCEPT AS OTHERWISE INDICATED ON THE PLANS, ALL HOUSE CONNECTION SEWERS SHALL BE TYPE "A" AND SHALL BE CONSTRUCTED ON STRAIGHT LINES AND GRADES BETWEEN CONTROL POINTS AND ELEVATIONS.
2. DIMENSIONS:
 - A. $Y = 1.85 \text{ m (6')}$
 - B. LENGTHS "A" AND "B" - SEE PLANS
 - C. HEIGHT "H" - SEE PLANS
 - D. ELEVATIONS "E" AND "F" - SEE PLANS
3. ALL HOUSE CONNECTION SEWER PIPE SHALL BE 150 mm (6") UNLESS OTHERWISE INDICATED AND MAY BE ANY OF THE FOLLOWING:
 - A. VC PIPE
 - B. PE PIPE
 - C. ABS SOLID WALL PIPE
 - D. ABS COMPOSITE PIPE
 - E. PVC PLASTIC PIPE

PROVIDED THAT CHANGES FROM ONE TYPE OF MATERIAL OR SIZE TO ANOTHER SHALL BE MADE ONLY BY MEANS OF SUITABLE ADAPTERS APPROVED BY THE ENGINEER.

4. THE UPPER END OF THE HOUSE CONNECTION SHALL BE SEALED BY INSTALLING A CAP AND SEALING THE CAP WITH 25 mm (1") THICK TYPE "F" MORTAR AROUND THE CIRCUMFERENCE OF THE CAP.
5. EXCEPT AS CONTROLLED BY ELEVATIONS INDICATED ON THE PROJECT PLANS, THE MINIMUM SLOPE FOR ALL PIPE SHALL BE 2% ($S=0.02$ MINIMUM).
6. THE FIGURE IN A CIRCLE ON THE PLANS ADJACENT TO A HOUSE CONNECTION SEWER STATION INDICATES THE DEPTH IN METERS (FEET) BELOW THE EXISTING TOP OF CURB TO WHICH THE INVERT OF THE UPPER END OF THE HOUSE CONNECTION SEWER SHALL BE CONSTRUCTED. IF NO DEPTH IS INDICATED, THE INVERT OF THE UPPER END SHALL BE THE ELEVATION SHOWN ON THE PROFILE. WHERE NEITHER DEPTH NOR ELEVATION IS INDICATED, THE INVERT SHALL BE 1.85 m (6') BELOW THE TOP OF THE EXISTING CURB.
7. BRANCHES SHALL BE EITHER TEES OR WYES AND SHALL BE ROTATED UPWARD FROM THE HORIZONTAL TO AN ANGLE OF 22-1/2' TO 45' WHEN TEES ARE USED. BENDS ARE NOT REQUIRED BUT MAY BE USED AT THE OPTION OF THE CONTRACTOR. WHEN THE BRANCH ROTATION DOES NOT CONFORM TO THE SLOPE OF THE HOUSE CONNECTION SEWER, PULLED JOINTS MAY BE USED FOR ADJUSTMENT.
8. THE MAXIMUM DEFLECTION AT EACH JOINT FOR 100 mm (4") AND 150 mm (6") VITRIFIED CLAY PIPE HOUSE CONNECTION SEWERS SHALL BE 4", WHICH IS EQUAL TO A PULL OF 14 mm (9/16") FOR A 150 mm (6") PIPE AND 10 mm (3/8") FOR A 100 mm (4") PIPE. (PULL IS DEFINED AS THE SEPARATION OF THE ABUTTING PIPE ENDS ON THE CONVEX SIDE OF THE CURVE MEASURED AT THE OUTSIDE PIPE BARREL).
9. CONNECTION OF A BUILDING SEWER SMALLER THAN 150 mm (6") TO A 150 mm (6") HOUSE CONNECTION SEWER SHALL BE MADE USING AN APPROVED INCREASER TEE OR AN INCREASER FOLLOWED BY A TEE.
10. ALL HOUSE CONNECTION SEWERS OR PORTIONS THEREOF CONSTRUCTED ON A SLOPE EXCEEDING 45' SHALL BE ANCHORED PER SPPWC 221.
11. HOUSE CONNECTION SEWERS CONSTRUCTED PURSUANT TO A HOUSE CONNECTION PERMIT SHALL CONFORM TO ALL APPLICABLE STATUTES AND ORDINANCES.

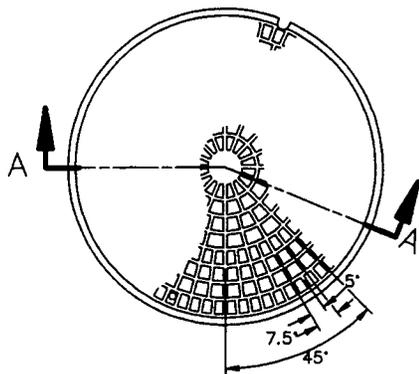
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

HOUSE CONNECTION SEWER

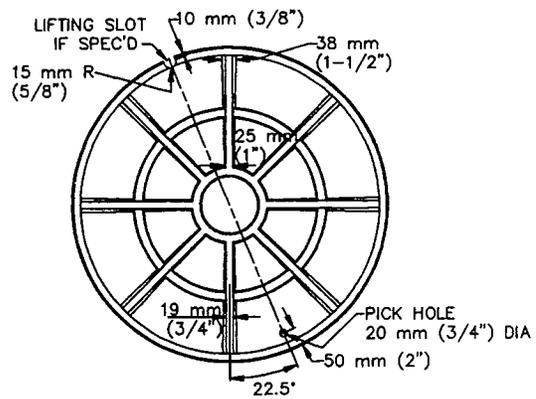
STANDARD PLAN
METRIC

222-1

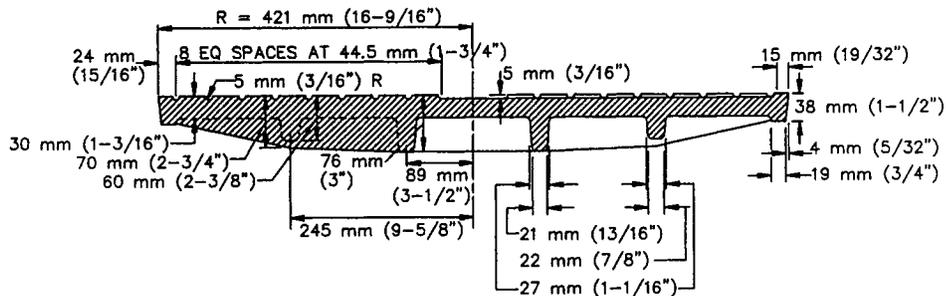
SHEET 2 OF 2



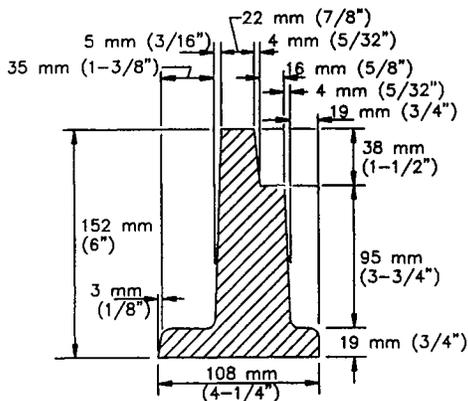
TOP OF COVER



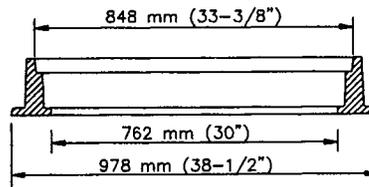
BOTTOM OF COVER



SECTION A-A



FRAME DETAIL



SECTION THRU FRAME

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE
PUBLIC WORKS STANDARDS INC.
GREENBOOK COMMITTEE
1984
REV. 1986

**762 mm (30") MANHOLE FRAME
AND COVER**

STANDARD PLAN
METRIC
632-2

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

SHEET 1 OF 2

NOTES:

1. THE CAST IRON USED SHALL CONFORM TO ASTM A-48 CLASS 35B.
2. COVERS SHALL BE CAST WITH THE LETTER "D" FOR STORM DRAINS AND "S" FOR SEWERS, AND THE AGENCY'S IDENTIFICATION IN ACCORDANCE WITH INSTRUCTIONS FURNISHED BY THE AGENCY. THE LETTER "D" OR "S" SHALL BE APPROXIMATELY 65 mm (2-1/2") HIGH WITH 15 mm (1/2") LINE WIDTH, AND PLACED IN THE CENTER OF THE COVER. ALL LETTERS SHALL BE FLUSH WITH THE FINISHED SURFACE OF THE COVER.
3. FOUNDRY IDENTIFYING MARK, HEAT AND DATE SHALL BE CAST ON THE BOTTOM OF THE COVER AND ON THE INSIDE OF THE FRAME.
4. IMPORTED COVERS AND FRAMES SHALL HAVE THE COUNTRY OF ORIGIN MARKING IN COMPLIANCE WITH FEDERAL REGULATIONS.
5. WEIGHT OF FRAME SHALL BE 145 kg (320 LBS). WEIGHT OF COVER SHALL BE 138 kg (305 LBS). ACTUAL WEIGHTS SHALL BE WITHIN A RANGE OF 95% TO 110%.
6. THE MANHOLE FRAME AND COVER SHALL BE INSPECTED BY THE ENGINEER PRIOR TO SHIPMENT TO THE JOB SITE. ACCEPTANCE WILL BE INDICATED BY THE AGENCY'S MARK.
7. THE PROOF-LOAD FOR TEST METHOD B OF SSPWC 206-3.2 IS 227 kN (51,100 LBS).
8. COVERS FOR MANHOLES LOCATED IN EASEMENTS, ALLEYS, PARKWAYS AND ALL PLACES OTHER THAN PAVED STREETS SHALL BE PROVIDED WITH SOCKET-SET SCREW LOCKING DEVICES. DRILL AND TAP TWO HOLES TO A DEPTH OF 25 mm (1") AT 90 DEGREES TO PICK HOLE AND INSTALL 20 mm x 20 mm (3/4" x 3/4") STAINLESS STEEL SOCKET-SET SCREWS WITH 10 mm (3/8") RECESSED HEX HEAD. ALL THREADS SHALL BE N.C.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

762 mm (30") MANHOLE FRAME & COVER

STANDARD PLAN
METRIC

632-2

SHEET 2 OF 2

APPENDIX V

**CONSTRUCTION AND DEMOLITION DEBRIS
RECYCLING SUMMARY**

CONSTRUCTION AND DEMOLITION DEBRIS RECYCLING SUMMARY

Project Type: Roadway and/or Bridge/Structure Water/Sewer
 Traffic Signal/Street Lighting Other _____

Project Name: _____ Date: _____

City Contract No. _____

Project Location: _____

Thomas Guide Page/Grid No(s): _____

Contractor Name: _____

Contractor Address: _____

Contractor License #: _____

Project Duration: From: _____ To: _____

Demolition and Recycling Cost: \$ _____

Type(s) of Debris Generated	Total Quantity Generated (tons, c.y. or units)	Reuse /Recycling		Disposal	
		Total Quantity (tons, c.y. or units)	Name of Reuse/Recycling Facility/Site	Total Quantity (tons, c.y. or units)	Name of Disposal Facility
Asphalt					
Brick					
Concrete					
Green Waste					
Metal (ferrous)					
Metal (non-ferrous)					
Mixed Debris					
Rock					
Soil					
Wood Waste					
Other:					
Total					

Notes:

- Other debris types may include, but are not limited to, Ash, Cardboard, Carpeting, Glass, Gravel, Land Clearing Debris, Non-friable Asbestos, Paper, Plastic, Porcelain, Roofing Material, Sand, and Tires. Attach additional sheets if necessary.
- If the debris is taken to a transfer station solely for the purpose of reuse/recycling, then list the transfer station as the reuse/recycling facility/site.
- If the debris is taken to a transfer station solely for the purpose of transfer to a disposal facility, then list the transfer station as the disposal facility.
-

Prepared by _____ Signature _____ Phone #: _____